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THE JOURNAL

OF THE

ROYAL ANTHROPOLOGICAL INSTITUTE

OF

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VOL. XXXVIII.

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NOTICE.

For convenience of reference, all volumes of the new (imperial octavo) series which began in 1898 are numbered in continuation of the old demy octavo series Vols. I–XXVII. Thus Vol. I of the imperial octavo series = Vol. XXVIII of the old series; and the present Vol. XXXVIII corresponds to N.S. Vol. XI.

The Index to the present volume includes an index to the Institute's monthly publication MAN for the year of issue 1908.

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JOURNAL

OF THE

ROYAL ANTHROPOLOGICAL INSTITUTE

OF GREAT BRITAIN AND IRELAND.

ANNUAL GENERAL MEETING.

JANUARY 28TH, 1908.

Professor D. J. CUNNINGHAM, M.D., D.C.L., F.R.S., *President, in the Chair.*

The Minutes of the last Annual General Meeting were read and confirmed.

The PRESIDENT appointed Messrs. N. W. THOMAS and C. SALAMAN Scrutineers, and declared the ballot open.

The SECRETARY read the Report of Council for 1907, which was adopted unanimously (p. 2).

The TREASURER presented his Report for 1907, which was similarly adopted (p. 5).

The PRESIDENT delivered his Anniversary Address (p. 10).

A vote of thanks was proposed to the President by Sir EDWARD BRABROOK, who asked, in the name of the Institute, that the President would allow his address to be printed in the *Journal.* The motion was seconded by Dr. KEITH and carried by acclamation.

The SCRUTINEERS handed in their Report, and the following were declared to be duly elected as Officers and Council for the year 1908-9:—

President.—Professor W. Ridgeway, M.A., Litt.D., F.B.A.

Vice-Presidents.

Col. Sir T. H. Holdich, K.C.M.G., K.C.I.E., C.B.

Sir H. H. Johnston, G.C.M.G., K.C.B.

Professor A. Thomson, M.A., M.B.

Hon. Secretary.—T. A. Joyce, Esq., M.A.

Hon. Treasurer.—J. Gray, Esq., B.Sc.

Council.

W. Crooke, Esq., B.A.
O. M. Dalton, Esq., M.A., F.S.A.
M. L. Dames, Esq.
J. Edge-Partington, Esq.
A. J. Evans, Esq., M.A., Litt.D., F.R.S., F.S.A.
T. Heath Joyce, Esq.
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Sir R. B. Martin, Bart.
A. P. Maudslay, Esq.
C. S. Myers, Esq., M.D.
Professor W. M. F. Petrie, D.C.L., F.R.S., F.B.A.
R. H. Pye, Esq.
A. S. Quick, Esq.
Professor Carveth Read, M.A.
W. W. Skeat, Esq., M.A.
Sir R. C. Temple, Bart., C.I.E.
E. Westermarck, Esq., Ph.D.
W. Wright, Esq., M.B., D.Sc.
G. Udny Yule, Esq., F.S.S.

Professor RIDGEWAY, being unavoidably prevented from being present at the meeting, was not formally installed as President.

A vote of thanks to the outgoing members of Council was proposed by Mr. LEWIS and carried unanimously.

A vote of thanks to the Scrutineers was carried on the motion of the TREASURER.

REPORT OF THE COUNCIL FOR 1907.

The Council is happy to be able to report another year of substantial progress. The number of new fellows, though falling a little short of the record constituted last year, attains, nevertheless, the satisfactory total of thirty-five. The following table shows the numerical gains and losses of the Institute :—

	Honorary Fellows.	Corresponding Fellows.	Local Correspondents.	Ordinary Fellows.		Total Ordinary	Total Membership.
				Compounding.	Subscribing.		
On 1 Jan., 1907 ...	45	6	31	78	310	388	470
Loss by death or resignation.	−1	1		−2	−12	−14	−16
Since transferred				+2	−2		
Since elected ...			+3	+3	+32	+35	+38
1 Jan., 1908 ...	44	5	34	81	328	409	492

Among the losses which the Institute has suffered through death are the Reverend Lorimer Fison, Honorary Fellow, Messrs. F. T. Elworthy, G. G. Lancaster, W. E. Malcolm and Dr. A. MacTier Pirrie, Ordinary Fellows of the Institute.

The Reverend Lorimer Fison, who died on December 29th, was well-known as an active contributor to Australasian anthropology. After some years

of missionary work in Fiji he went to Australia, where the rest of his life was spent. He was a contributor to Morgan's *Systems of Consanguinity*, and subsequently contributed a number of papers to the Institute's *Journal*, some in collaboration with Mr. A. W. Howitt. He was also the author, with Mr. Howitt, of *Kamilaroi and Kurnai*, and shortly before his death had produced *Tales from Old Fiji*.

Frederick Thomas Elworthy also died in December. His early works dealt with the phonology and grammar of Somersetshire, but more recently he had turned his attention to the investigation of certain branches of popular superstitions. *The Evil Eye* and *Horns of Honour* contain the results of his researches in this field. He was the contributor of a paper on "Perforated Stone Amulets" to *Man*, 1903, **8**.

The promising career of Dr. A. MacTier Pirrie was cut short at the early age of twenty-eight. Appointed a Carnegie Research Fellow of the University of Edinburgh he went to the Sudan to carry out anthropological investigations under the auspices of the Wellcome Research Laboratories, Khartum. In this work he was eminently successful, and he returned to this country in July with much important information and many valuable specimens and photographs. Unfortunately, he had contracted a virulent form of tropical fever to which he succumbed on November 12th. The notes which he has left are at present being arranged for publication, and his collection will also be made the subject of a report.

Mr. W. E. Malcolm was a Fellow of long standing, having become a member of the Ethnological Society in 1855.

Anthropologists will also regret the loss of the following explorers and students whose works have contributed much, directly or indirectly, to the study of mankind.

Dr. Arthur Baessler, well-known for his researches in Oceania and South America, died towards the end of the year. He was the author of several books, and the museums in Berlin, Dresden and Stuttgart have benefited much from his activity as a collector.

The death of Dr. Carl Bovallius, the distinguished Swedish anthropologist and zoologist, was announced in March. As an explorer he had traversed and surveyed large tracts in Venezuela, Nicaragua and British Guiana. His scientific works were written to a large extent in English, and the British Museum and the Cambridge University Natural History Museum had benefited by his donations.

Don Alfredo Chavero, who died in October, was an eminent student of Mexican archæology, and his copious writings on that subject are well-known to Americanists.

The Société d'Anthropologie de Paris has lost one of its past Presidents in the person of Professor Mathias Duval, whose contributions to science belong chiefly to the domain of anatomy and histology.

Another distinguished Americanist, Albert Samuel Gatschet, of the Bureau of American Ethnology, died in March. A Swiss by birth he had been attached to the Smithsonian Institution, and had made many expeditions amongst the North American Indians for the purpose of collecting ethnographical and philological data.

Dr. Alfred Kirchhoff, who died in February, was best known as a geographer, but much of his work lay within the sphere of anthropology.

The Reverend William George Lawes, a colleague of the celebrated Chalmers, and one of the pioneers of exploration in New Guinea, died in August. Most of his published work is to be found in the *Geographical Journal.*

The death of Professor Leon Lejeal, another Americanist, is all the more to be regretted since he was unable to work out entirely all the material which he had collected. He was the General Secretary of the Société des Américanistes de Paris and had previously done good service at the Trocadero Museum.

The ethnographical and philological researches of Professor de Calassanti-Motylinski among the Tuareg are well known, and his collection of rock inscriptions was a valuable piece of work. He died in March in Constantine, where he was Director of the Medersa.

Dr. Julius Naue, editor of *Prähistorische Blätter*, also died this year. Perhaps his best known work was *Die Vorrömischen Schwerter aus Kupfer, Bronze und Eisen* (reviewed in *Man*, 1904, 24).

The death of Peter von Stenin is announced from St. Petersburg. His numerous publications included various treatises of ethnographical interest dealing mainly with Russia.

Meetings.

During the year ending December 31st, 1907, twelve ordinary and two special meetings were held. At these, eighteen papers were read, nine dealing with ethnographical subjects, seven with archæological, and two with physical; and five exhibitions of specimens were made.

Huxley Memorial Medal.

The Huxley Memorial Medal this year was presented to Professor Edward Burnett Tylor on the occasion of his 75th birthday in recognition of his life-long services to the science of anthropology. The Council further took the opportunity of dedicating to him the current volume of the *Journal* of the Institute, and desire once more to record their deep sense of the debt which anthropologists throughout the world must ever owe to his monumental works.

Publications.

During the year two half-yearly parts of the *Journal* have been issued, viz., Vol. XXXVI, 2 (July–December, 1906) and Vol. XXXVII, 1 (January–June, 1907). Of the former 86 copies have been sold, of the latter 90. The combined sales, therefore, constitute a record.

With regard to *Man*, the usual twelve monthly parts have been issued. The amount already received from subscriptions is larger than that of last year, and the Council believes that *Man* is slowly but surely increasing its circulation, and would wish to call attention to the great value of this publication as a means of procuring presentation copies of books for the Library. It is recommended that the present system of subscription be continued during the coming year; but at the same time the Council thinks that it may be found possible to reduce the price of *Man* at the expiration of that period; the Council believes that such a measure would give considerable impetus to the sale of *Man* among the outside public.

The Council further delegated three of its members to form a joint Committee with three nominees of the Council of the Folklore Society to prepare and publish a Bibliography of Anthropology and Folklore containing works published in the British Empire during 1906. The volume was issued in December, and it is proposed that a similar volume shall be issued annually.

Library.

The list of accessions to the Library constitutes another record. Arrears of binding have to a large extent been made up and additional shelves have been erected. The Exchange List has been revised and increased by the addition of five periodicals, four foreign and one English.

External.

The deputation to the Prime Minister on the subject of the Anthropometric Survey was received on March 5th and an account of the proceedings will be found in Vol. XXXVII of the *Journal*, p. 424. The Council is glad to learn that the promise made to the deputation by the Prime Minister has been fulfilled by the introduction of Anthropometry into Public Elementary Schools under the Education (Administrative Provisions) Act. It is also gratified to hear that Eton has shown the way to the Public Schools by introducing a very complete system of Anthropometry under the supervision of the Institute's Treasurer.

Augmentation of Title.

In accordance with the intention expressed in the Report of Council for last year, application was made for permission to assume the title "Royal Anthropological Institute of Great Britain and Ireland." The two special general meetings necessitated by the Company's Act for the purpose of re-registration were held, and the Council are pleased to record that His Majesty The King has been graciously pleased to command that the Anthropological Institute shall be henceforward known as "The Royal Anthropological Institute of Great Britain and Ireland."

TREASURER'S REPORT FOR THE YEAR 1907.

On the 31st December, 1907, the assets of the Institute were as follows:—

	£	s.	d.	£	s.	d.
Assets (not immediately realisable):—						
Books in Library, Publications, Furniture as per estimate of 1903 ...				885	0	0
Realisable Assets:—						
£300 Metropolitan Consolidated 3½ per cent. Stock, present value	300	0	0			
Balance at Bank	247	2	1			
Cash in Hand	3	0	0			
Petty cash	4	14	2			
Country cheques (cashed after 31.12.07)	3	4	0			
Arrears of subscriptions, £132 8*s.* 0*d.* valued at	52	10	0			
				610	10	3
Total Assets				£1,495	10	3

Against which there are liabilities :—

	£	s.	d.	£	s.	d.
Anthropological *Notes and Queries* ...	63	18	8			
Library Fund	5	4	10			
				69	3	6

Leaving a surplus, if all our property were realised, of £1,426 6 9

Considering only our immediately realisable assets :—

	£	s.	d.
These amount to	610	10	3
Less	69	3	6
	541	6	9

The state of ideal solvency also implies, as in my last report, the following additional liabilities :—

	£	s.	d.
Journal (1907)	250	0	0
Man (December, 1907)	16	0	0
Unexpended life subscriptions	502	0	0
Total	£768	0	0
Our immediately available Reserve Fund is	541	6	9
Leaving a deficit in the Reserve Fund of	226	13	3

The Financial Position of the Institute.

The total receipts of the Institute this year are £54 in excess of last year's.

The receipts from annual subscriptions are £58 more than last year, and £105 has been received from life subscriptions, which may be compared with £126 received from life subscriptions in 1906.

The receipts from sale of *Journal* are £20 more than in 1906, thus continuing the advance in these sales recorded in my last report. The net receipts from *Man* are only about £1 less than last year, which compares favourably with the drop of £28 recorded in my last report.

The total expenditure this year is £38 more than last year, for about £10 of which increase the *Journal* and *Man* are responsible.

The net increase in our membership this year has not been so large owing to a greater loss by death or resignation. Though we have now a considerable Reserve Fund in hand, owing to the comparatively large number of life subscriptions we have received within the last two years, a further increase in the number of our annual subscribers is desirable, to make the financial position of the Institute thoroughly satisfactory. There is every sign that, for this increase in our membership, we shall not have long to wait.

J. Gray, *Hon. Treasurer.*

ROYAL ANTHROPOLOGICAL INSTITUTE

Receipts and Payments

RECEIPTS.	£ s. d.	£ s. d.	£ s. d.
BALANCES in hand, January 1st, 1907 :—			
Cash in Bank	161 16 10		
Cash in Hand	6 3 4		
Country cheques received but not paid until after 31st December, 1906	23 8 0		
		191 8 2	
Less Balances owed as per 1906 Account :—			
Library Fund	13 6 6		
"Notes and Queries"	59 14 8		
		73 1 2	
			118 7 0
SUBSCRIPTIONS :—			
Five Life Subscriptions		105 0 0	
Ordinary		538 13 0	
Arrears		50 8 0	
Advance		35 14 0	
			729 15 0
SALE OF JOURNALS	177 3 8		
Less Refund	12 0		
		176 11 8	
SALE OF HUXLEY LECTURES		2 10 6	
			179 2 2
"MAN"			
Net receipts		99 0 0	
Postages		14 1 0	
			113 1 0
ADVERTISEMENTS in *Journal*			4 0
" " "Man"			1 5 0
DIVIDENDS and Interest			13 7 2
LIBRARY FUND :—			
Balance, January 1st, 1907	13 6 6		
Grant	10 0 0		
		23 6 6	
Less Binding and Books	10 0 10		
Petty Cash	8 0 10		
		18 1 8	
			5 4 10
"NOTES AND QUERIES" :—			
Balance		59 14 8	
Received, 1907		4 4 0	
			63 18 8
HOBLEY'S "UGANDA" : Balance			28 8 7
"PHYSICAL DETERIORATION" : Balance			8 15 6
Bibliography			2 0
SUNDRIES			3 8 1
			£1,268 19 0

OF GREAT BRITAIN AND IRELAND.

for the Year 1907.

PAYMENTS.	£	s.	d.	£	s.	d.	£	s.	d.
Rent							135	0	0
Journal				371	4	1			
Less refund	4	10	0						
	10	0	0						
				14	10	0			
							356	14	1
Advertising							10	17	0
"Man":—									
Printing and blocks	180	2	1						
Less refund	1	0	0						
				179	2	1			
Postage				14	1	0			
							193	3	1
Salaries	123	10	6						
Less cheque not paid till after 31st December, 1907	7	10	0						
							116	0	6
Housekeeping							20	10	0
Stamps and Parcels							57	15	6½
Printing and Stationery							27	2	6½
Lantern							4	5	5
Grant to Library							10	0	0
Huxley Medal							7	2	6
Hobley's "Uganda":—									
Balance as per contra				28	8	7			
Received 1907					16	0			
							27	12	7
"Physical Deterioration":—									
Balance as per contra				8	15	6			
Received 1907					12	10			
							8	2	8
Insurance							1	16	4
Travelling							2	5	0
Sundries							28	19	4
Balance at Bank:—									
Deposit account				100	0	0			
Current account				147	2	1			
Cash in Hand				3	0	0			
Petty cash in hand				4	14	2			
Country cheques received but not paid till after 31st December, 1907.				3	4	0			
							258	0	3
Debit on Petty Cash, 31st December, 1906							3	12	2
							£1,268	19	0

We have examined the above accounts and compared them with the Books and Vouchers relating thereto, and find the same to be accurate.

(Signed) RANDALL H. PYE, F. W. RUDLER, } *Auditors.*

January 10*th*, 1908.

ANNIVERSARY ADDRESS.

By the President, Professor D. J. Cunningham, M.D., D.Sc., LL.D., D.C.L., F.R.S.

ANTHROPOLOGY IN THE EIGHTEENTH CENTURY.

[With Plates I–V.]

I think we may say that, in so far as the Institute is concerned, 1907 has been, in many respects, an interesting and eventful year. Not the least important event has been the acquisition by the Institute of the prefix "Royal." We appreciate very highly His Majesty's gracious permission to add this qualification to our title. Scientific societies such as ours, have two somewhat different obligations to fulfil. In the first place, it is our bounden duty to do everything in our power by earnest and persistent research to extend the boundaries of anthropological knowledge. I do not doubt that it will be generally admitted, that this is an obligation which our Institute has not neglected. We have merely to cast our eye over the published "proceedings" to see that anthropology owes much to the members of this Institute. But, as I have said, we have a second duty imposed upon us. We have to reach the general mass of the people, and to kindle in them an interest in our work—and this, not alone with the view of enlisting recruits at home and abroad, who will add to the volume of original work turned out, but also with the view of impressing the public with the educational and practical advantages to be derived from anthropological study. The increased dignity which the addition to our title gives to the Institute will, I believe, operate beneficially in enabling us the better to carry out this important function. In any case, it marks a stage in the career of the Institute, and the occasion appears appropriate for recalling certain events which occurred at two other important stages in its history.

The Anthropological Society, which to a large extent must be looked upon as the direct predecessor of the Institute, was founded in 1863. For twenty years before this there had existed an Ethnological Society, but although it had on its roll some very eminent members—men whose names are held at the present day in the highest honour and reverence—the Ethnological Society cannot be said to have thriven in a degree equal to the importance of the subject it represented. Its roll of members was small and its output of work was inconsiderable.[1]

At that time anthropology was in a transition stage, and it was becoming apparent that its outlook must be enlarged enormously. Ethnology was no doubt

[1] It should be noted, however, that in 1846 its roll of members rose to 170.

a most important branch, but it filled only a portion of the horizon. Many other fruitful fields for research were gradually being opened up, and, besides all this, the sciences on which anthropology is built were expanding in every direction, and were in turn reacting upon the subject of which they formed the supporting columns.

In those days anthropologists were looked upon with some suspicion. They were regarded as men with advanced ideas—ideas which might possibly prove dangerous to Church and State. In London, as indeed might be expected, no opposition was offered to the formation of the Anthropological Society, but in Paris the first attempt to found a similar Society in 1846 was rendered futile by the intervention of the Government, and when finally, in 1859, the Anthropological Society of Paris was formed, Broca, its illustrious founder, was bound over to keep the discussions within legitimate and orthodox limits, and a police agent attended its sittings for two years to enforce the stipulation. The same fear of anthropology, as a subject endowed with eruptive potentialities, was exhibited in Madrid, where the Society of Anthropology, after a short and chequered career, was suppressed. It is indeed marvellous how, in the, comparatively speaking, short period which has elapsed, public opinion should have veered round to such an extent that at the present day there is no branch of science which enjoys a greater share of popular favour. Huxley's prophecy has come true. Speaking of anthropology in 1878 he said, "Whoever may be here thirty years hence . . . will find that the very paradoxes and horrible conclusions, things that are now thought to be going to shake the foundations of the world, will by that time have become parts of everyday knowledge, and will be taught in our schools as accepted truth, and nobody will be one whit the worse."[1]

The success of the Anthropological Society of London in the first few years of its existence was remarkable. Dr. Hunt, its founder, and its president for the first four years, was a young man of great energy, strong views and many accomplishments. When he resigned the Chair in 1867, the membership had reached the large total of 706,[2] and he spoke confidently of being able to increase the list to 2,000. I need not say that this anticipation was never realised.

I do not think that the popularity of the Society in these its early days is difficult to explain. Professor Huxley thought that the large audiences which are wont to throng the Anthropological Section of the British Association, are due to the innate bellicose instincts of man, and to the splendid opportunity afforded by anthropology for indulging these propensities.

There cannot be a doubt that the talk in the Anthropological Society was of a distinctly volcanic character. Politics and religion were not excluded from its debates, and the position of the negro in the scale of humanity—at that time a very burning question—frequently cropped up in its proceedings. Dr. Hunt

[1] British Association, Dublin, 1878. Department of Anthropology—address by Professor Huxley.

[2] The Anthropological Society of Paris in the preceding year had a membership of 222.

strongly opposed the doctrine of human equality; he thought that it would be as difficult for an aboriginal Australian to accept civilization as "to get a monkey to understand a problem in Euclid"; and he denounced those who differed from him in no unsparing manner.

A good field was thus offered for the display of man's bellicose tendencies, and the roll of the Anthropological Society waxed large. I do not know whether our energetic and able treasurer, Mr. Gray, might be inclined to take a hint from this little bit of ancient history, but I imagine that he would prefer to build the numerical strength of our Institute upon more secure and enduring foundations.

The second stage in the career of the Anthropological Society was reached early in the year 1871. It then amalgamated with the Ethnological Society. I think that there is a general consensus of opinion that the credit of bringing about this most desirable union belongs to Professor Huxley. At that time he was the President of the Ethnological Society, and he met the representatives of the Anthropological Society armed with full powers to act as he saw fit. The title to be given to the future Society had previously proved a stumbling-block in the way of an agreement; but we are told by Sir Edward Brabrook, who was one of those who acted for the Anthropological Society, that Huxley's "first words settled the whole question." He said, "I am convinced that 'Anthropology' is the right word, and I propose that the amalgamated Society be called the Anthropological Institute."[1]

In this manner the Anthropological Institute of Great Britain and Ireland was launched, and for thirty-six years it has sailed under the name which was given it by Professor Huxley. The change of title which was effected last year, marks, as I say, another stage in its career, and will, I trust, add to its usefulness and popularity.[2]

During the year which has passed several celebrations, which possess a direct interest for our Institute, have been held. That which touches us most nearly was the celebration on the 2nd of October of the seventy-fifth birthday of Professor E. B. Tylor. This was an occasion on which the Institute could not stand aside, and it took advantage of the opportunity which was thus offered to testify to its profound admiration and respect for Professor Tylor by dedicating to him the current volume of the *Journal* and by asking him to accept the Huxley Memorial Medal.

Professor Tylor stands as the great leader and thinker in those branches of

[1] Sir Edward Brabrook, *Humanitarian*, No. 4, Oct. 1899, vol. xv, p. 230.

[2] It is a curious and interesting circumstance, that the year (1859) in which the Anthropological Society of Paris was founded coincides with the publication of the *Origin of Species*; that the year (1863) in which the Anthropological Society of London was founded coincides with the publication of *Man's place in Nature;* and that the year (1871) in which the union of the Anthropological and Ethnological Societies took place coincides with the publication of the *Descent of Man.* How profoundly the progress of Anthropology has been affected by these coincident events is apparent to all.

anthropology which he himself has so largely developed and of which he is generally regarded as the founder. It is unnecessary to dwell on the remarkable influence which he has exercised, not only by his work, but also by his attractive personality, on the progress of the Science to the extension of which the energies of this Institute are devoted; but I would like to allude to the long-standing connection which has existed between Professor Tylor and this Institute. This connection dates back to 1863—the year of the origin of the Anthropological Society. He was one of its founders; he has twice been the President of the Institute; he has been a frequent contributor to its publications; he has constantly shown it his good-will, and he has continually lent to it the weight and authority of his great name. We are deeply sensible of the influence which this long connection has given to us.

To the geologist we owe what information we possess regarding the antiquity of man, and also what we know regarding the periods at which early man attained his different stages of culture. The celebration, therefore, of the Centenary of the Geological Society in September last called forth the warmest sympathy on the part of the Institute. We were most worthily represented at the Festival by Professor Boyd Dawkins, who presented a congratulatory address on behalf of the Institute.

In the course of the year 1907 two other anniversaries occurred which likewise present an especial interest to the Institute. In 1707 Charles Linné, better known as Linnæus, and Comte de Buffon, the great French Naturalist and Anthropologist, were born.

The bi-centenary of the birth of Linnæus was celebrated in May with much formality and pomp by a double function, held first in Upsala and then in Stockholm. So far as I am aware, the bi-centenary of the birth of Buffon has been passed over more or less unnoticed.

The year of their birth and the remarkable influence which both exerted on the progress of Biological Science are the only points which these two great men possess in common. In other respects, both in life and in work, they present a marked contrast. Linnæus, the son of a poor clergyman, showed so little taste for the ordinary school subjects, that his father, in despair, came to the conclusion that he was only fit to be a shoemaker or a tailor. From this fate he was rescued by a medical friend who had detected in the backward scholar a strong predilection for scientific study. Buffon, on the other hand, the son of a landed proprietor in Burgundy, enjoyed every advantage in education that money could procure, and at the age of twenty-one came into possession of a handsome fortune. At the same age Linnæus (as he tells us in his diary[1]) was a student in the University of Upsala, living on a yearly pittance of £8, often in want of money to procure a meal, and obliged to patch his worn-out shoes with folded paper.

The contrast in the temperament and genius and also in the mode of work of Linnæus and Buffon was no less striking: Linnæus slow, plodding, fond of detail,

[1] *A General view of the Writings of Linnæus*, by Richard Pulteney, 1805, p. 517.

constantly striving after accuracy and precision in the smallest matters, and, probably as a consequence of this, a dull and uninteresting writer; Buffon, brilliant and dashing, impatient of detail and with a rooted distaste for the minutiæ of classification, and, above all, a most fascinating writer. It was fortunate for Buffon that he had as a colleague and associate the painstaking and accomplished anatomist, Daubenton, whose careful descriptions of the structure of animals constitute not the least valuable parts of Buffon's works.

The labours of Linnæus touch only very slightly the domain of anthropology. He gave man a place in his Natural System, and thus endeavoured to define his place in Nature. He placed him in the order Primates along with the apes, the lemurs and the bats. Since that time man has been buffeted about by the various naturalists who have endeavoured to classify him, but now it would almost seem that he has been provided with a permanent home in the original dwelling-place which was constructed for him by Linnæus; the bats, however, have been thrust out and denied so close an association with him. We should not give Linnæus too much credit for prescience in this matter. In fact, when we note the very imperfect knowledge which he possessed of the apes—both high and low—we cannot help concluding that the classification of man and the apes which he proposed was based on very slender evidence indeed. It need not cause surprise, therefore, that in his *Fauna Suecica* he admits that "up to the present he has been unable to discover any character by which man can be distinguished from the ape," and that in his *Systema Naturæ* he further remarks "that it is wonderful how little the most foolish ape differs from the wisest man."

Buffon, who has been termed the French Pliny, had a much deeper insight into the natural history of man, and a much more accurate acquaintance with the relations which exist between man and the apes. He had seen a young living chimpanzee, and along with Daubenton he had described a specimen of the Gibbon (*Hylobates Lar*[1]). He advocated the unity of the origin of man, and in his monumental work he describes the "Varieties of the Human Species," although he only deals with superficial characters, such as stature, colour, hair and features. By many, therefore, Buffon is regarded as the founder of Anthropology. To quote the words of Flourens, "Anthropology sprang from a great thought of Buffon. Up to his time man had never been studied except as an individual; Buffon was the first who, in man, studied the species." This is only partially true. We should not forget that Aristotle in his work on the "History of Animals," treats of man as a member of the animal kingdom, and discusses him from the physical, psychical and social aspects.

Anthropology in the eighteenth century offers a most interesting and instructive field for historical study. It is an oft-repeated truism that the knowledge of each succeeding period is built upon foundations which have been laid in previous ages. The thoughts of to-day are merely the thoughts of

[1] Huxley's *Man's Place in Nature*, 1863 Edition, p. 13.

yesterday purged of fallacies, and added to by later experience. To understand the position of any science at any particular time, it is therefore necessary in the first instance to take a glance backwards into the recesses of preceding ages.

Each of the two centuries which preceded the eighteenth century is marked by a notable advance which rendered possible and paved the way for the striking development of anthropology which took place in the eighteenth century. It is self-evident that no advance in physical anthropology could be made, no attempt to contrast the structure of the different races or the structure of man with that of the lower animals without, in the first place, laying a sure foundation of human anatomy.

For more than a thousand years prior to the sixteenth century, the only anatomy known and taught was the anatomy of Galen; but in 1543 the great work of Vesalius, entitled *The Structure of the Human Body*, was issued from the press, and a new era in the study of this subject opened. Vesalius is one of the most interesting figures in the sixteenth century. With Copernicus and Galileo he shares the glory of having wrenched asunder the fetters which circumscribed the thoughts of the earlier writers, and of having placed the pursuit of science in the more invigorating realm of original research.

Vesalius demonstrated in the clearest manner that the anatomy of Galen was not the anatomy of man, but in a large measure the anatomy of the ape; in short, he placed the study of the structure of man on the solid foundation of direct observation.[1]

If, from the anthropological point of view, the person who bulks most largely in the sixteenth century is Vesalius, in the seventeenth century, attention is chiefly fixed upon Tyson. Tyson contrasted the structure of man with that of the chimpanzee, one of the recently discovered man-like apes, and the treatise which he wrote on this theme is generally recognised as a model of comparative description. This treatise, which was published in 1699, under the authority of the Royal Society, bears the quaint title of "Orang-outang sive homo sylvestris or the anatomy of a Pygmie compared with that of a Monkey, an Ape and a Man." The conclusion arrived at may be stated in Tyson's own words. "Our Pygmie," he says, "is no man nor yet a common ape, but a sort of animal between both." Here then is a solid attempt to fix the place of man in Nature, and this all the more valuable seeing that the comparison which is instituted is with one of those

[1] It is interesting to note in passing that certain racial distinctions did not escape the eye of Vesalius. "It appears," he remarks, "that most nations have something peculiar in the shape of the head. The crania of the Genoese and, still more remarkable, those of the Greeks and the Turks are globular in form. This shape which they esteem elegant and well adapted to their practice of enveloping the head in the folds of their turbans, is often produced by the midwives at the solicitation of the mother." And he further observes, "that the Germans had generally a flattened occiput and broad head because the children are always laid on their backs in the cradles; and that the Belgians have a more oblong form because the children are allowed to sleep on their sides." These views on the influence of more or less continuous pressure on the pliable head of the infant have been revived in modern times.

animals which stand in nearest structural relationship to man. The skeleton of the Pygmie descended in the family of Tyson until the marriage of his grand-daughter to Dr. Allardyce of Cheltenham. It was then handed over to the museum in Cheltenham, and afterwards transferred to the South Kensington Museum, where it may be seen at the present day.

The three centuries to which I have referred show an interesting gradational relation to each other in so far as the study of mankind is concerned. In the sixteenth century the true structure of man is made known ; in the seventeenth century, the structure of man is contrasted with that of an anthropoid ape ; in the eighteenth century, which opens with the birth of Linnæus and Buffon, we are introduced to the study of the comparative anatomy of the races of man. Camper, White and Soemmering contrast the structure of the negro with that of the European, whilst Blumenbach, Prichard and Lawrence compare the different races with each other and establish that branch of our science which is termed Ethnology.

It is not possible to separate the work of one century by a hard and fast line from that of another: there is always a considerable overlap, and thus with the exception of Camper, the other five anthropologists whom I have named carried on their work into the first part of the succeeding century. It is interesting to note that they present this point in common that they were all physicians, and the three English members of the group were only able to pursue their labours in the anthropological field as a pastime, and during the few leisure hours they could snatch from the practice of an arduous profession.

[PETER CAMPER, 1722–1789.] Peter Camper was born in Leyden in 1722 and died in the Hague in 1789. His father, a man of erudition and refined tastes, was on terms of intimate friendship with the celebrated physician Boerhaave. Young Camper thus enjoyed all the advantages which accrue when a keen and receptive intellect is brought into frequent and close contact with a veteran master-mind. His early inclinations were towards art and he received a careful training in drawing, painting and architecture. It was largely through these attainments that he was at a later period in his life enabled to leave his mark in the field of Anthropology. He graduated in Medicine in 1746 and two years later he spent a year in London with the view of extending his experience. The most interesting incident connected with this part of his career was his association with John Hunter the anatomist. Camper studied anatomy under this great master, and the influence of his teacher is very apparent in the indefatigable zeal which he afterwards showed in the pursuit of Comparative Anatomy. Fond of travelling he became the friend and associate of many of the leading men of the day—Buffon, Daubenton, Franklin, Haller, Blumenbach. Blumenbach was wont to say in his old age that he considered his correspondence with Camper one of the most fortunate incidents in his life.

PETRUS CAMPER.

Camper was a man of the most brilliant talents, but it is a matter for regret that he spread his energies over so many varied fields of intellectual activity. His versatility was remarkable, and he held that next to the pleasure of discovering a truth was the pleasure of spreading it abroad. He was therefore a most prolific writer, a determined fighter and known both in London and Paris as a lecturer.[1]

Only four of the numerous writings of Camper may be claimed as having a direct bearing upon the development of Anthropology, viz., an essay upon the "Physical Education of the Child," published about the year 1761; a lecture delivered in 1764, in the Gröningen Anatomical Theatre upon "The Origin and Colour of the Negro"; an important work upon "The Orang-outang and some other species of Apes" published in 1778; and his lectures to the Academy of Drawing in Amsterdam in which he elaborated his views regarding his celebrated facial angle.

There is not much of present interest in his dissertation upon the "Physical Education of the Child,"[2] as he only treats of the first seven years of childhood. In these days of anthropometry and general attention to physical culture it is instructive to note that Camper, writing in the middle of the eighteenth century, states that his precepts, simple as they are, can only be applied to the children of the rich.

Camper had dissected three negroes, but his article on this subject[3] can hardly be said to be worthy of his high reputation. Embued with the principles of Buffon he contends that the colour of the negro is merely a matter of climate. Given a sufficient amount of time—several centuries he says—it would therefore be possible to turn a white race black or a black race white; and he goes on to make the quaint remark that such an experiment could only be carried out by great princes, and we would not live to see the result.

His treatise upon the Orang[4] is a great work and may be read with advantage at the present day. He performs for this member of the anthropoid group of apes the same task that Tyson accomplished for the chimpanzee. Man's place, therefore, in relation to the nearest of his congeners becomes still more clearly defined. In the introduction to this memoir Camper devotes some interesting paragraphs to the old sixteenth century discussion regarding the anatomy of Galen, and comes to the conclusion, in opposition to Eustachius, that Galen had never dissected the human body or at least that the structure of man had not served as the foundation upon which he had composed his works. Camper also elaborates the theory that Galen had taken his facts, in part at least, from the orang—a deduction which to most anthropologists will probably appear somewhat doubtful.

[1] Interesting details regarding Camper's life will be found in the first volume of *Oeuvres de Pierre Camper, etc.* (1803) in which three articles on this subject, written respectively by his son, by Vicq. D'Azyr, and by Condorcet, will be found.

[2] "De l'Education physique des Enfans," *Oeuvres de Pierre Camper*, 1803, vol. iii, p. 223.

[3] "De l'origine et de la couleur des Nègres," *Oeuvres, etc.*, vol. ii, p. 451.

[4] "De l'Orang-outang, et de quelques autres espèces de Singes," *Oeuvres, etc.*, vol. i, p. 5.

It is in this treatise that Camper announces that in the public dissection of a young negro in Amsterdam in 1758 he discovered the anomaly known as an eighth true rib,[1] and he discusses its import. This discussion is being carried on at the present day.

All through his career, in spite of his professorial duties in such varied subjects as Philosophy, Anatomy, Botany, Surgery and Medicine, in spite of his increasing investigations in Medicine, Pathology, and Comparative Anatomy, in spite of his cares and responsibilities as a statesman, Camper never lost his interest in art. In it he found his relaxation and his delight. At different times he lectured at the Academy of Fine Art in Amsterdam, and in one of these expositions, delivered in 1770, he enunciated the principles of the facial angle which from that time has borne his name. These lectures were not published until much later. In the closing years of his life he arranged them for the printer and prepared the illustrations, but political troubles in Holland interfered with his intention, and finally he died without having accomplished his task. The subsequent publication of the work was carried out by his son. I have not seen the Dutch edition, but I have studied both the French[2] and the English translations;[3] of these it appears to me that the former, now very rare, is the more reliable of the two.

In the introduction to this volume Camper tells us how his attention was directed to the varied facial characters presented by the different races of mankind. He says—"At the age of eighteen, my instructor, Charles Moor the younger, to whose attention and care I am indebted for any subsequent progress I may have made in this art, set me to paint one of the beautiful pieces of Van Tempel, in which there was the figure of a negro, that by no means pleased me. In his colour he was a negro, but his features were those of a European. As I could neither please myself nor gain any proper directions, I desisted from the undertaking. By

[1] So far as I know this is the first record of an eighth true rib in man, and it is interesting that it should have been observed in a negro. Somewhat later Soemmering also described the same condition in a negro and stated that in this race the eighth rib approaches more nearly to the sternum than in the European. Probably it is from these observations by Camper and Soemmering that the idea took root that this interesting reversion to a primitive type was more common in (if indeed it was not the monopoly of) the negro. Luschka protests against such a view (*Anatomie des Menschen*, vol. i, *Die Brust*, p. 119, 1863); but in *Nature* (1st Nov. 1888) there is a note to the effect that Dr. Lamb of Washington had observed ten cases of this anomaly—all in negroes, with the exception of one, which occurred in an American Indian. No mention is made of the number of negroes which he had examined in which the condition was not present.

At the present time no comparative statistics are available as to the relative frequency of the attachment of the eighth rib to the sternum in the negro and the European. All we do know is that the condition occurs with a considerable degree of frequency in both races.

[2] "Dissertation Physique de M. Pierre Camper, sur les différences réelles que présentent les traits du visage chez les hommes de différent pays et de différent âges, etc." Publiée après le décès de l'auteur par son fils Adrien Gilles Camper; traduite du Hollandois par D. B. Q. D'Isjonval. Autrecht 1791.

[3] "The works of the late Professor Camper on the connection between the Science of Anatomy and the Arts of Drawing, Painting, Statuary, etc."; translated from the Dutch by T. Coglan, M.D., London, 1794.

critically examining the prints taken from Guido Reni, C. Marat, Seb. Ricci, and P. P. Rubens, I observed that they in painting the countenances of the Eastern Magi had, like Van Tempel, painted black men, but they were not Negroes. The celebrated engraver, Cornelius Visscher, was the only one who appeared to me to have followed Nature and to have properly characterised Negroes."

In his endeavours to attain accuracy in the delineation of the facial characteristics of the different races Camper devised a craniometrical system. Prior to this Daubenton had made some observations regarding the position of the foramen magnum, but with this exception Camper, by the application of his system, may be said to have been the first to have occupied the craniometrical field from the standpoint of racial distinctions. Still it should be understood that his efforts were entirely directed towards the advance of art, and it is doubtful if he had any thought that he was at the same time assisting in founding an important branch of Ethnological Science.[1]

Only one of Camper's craniometrical methods—the well-known facial angle—has borne the strain of time, and to it alone need we refer. This angle he obtained by drawing a line from the aperture of the ear to the base of the nose (subnasal point) and another from the line of junction of the lips (or in case of the skull from the front of the incisor teeth) to the most prominent part of the forehead. Referring to the results obtained by the facial angle he remarks:—"If the projecting part of the forehead be made to exceed the 100th degree, the head becomes mis-shapen and assumes the appearance of hydrocephalus or watery head. It is very surprising that the artists of Ancient Greece should have chosen precisely the *maximum*, while the best Roman artists have limited themselves to the 95th degree, which is not so pleasing . . . . The two extremes of the facial angle in man are 70° to 100°—from the Negro to the Grecian antique; make it under 70° and you describe an Orang or an Ape; lessen it still more and you have the head of a dog."

Here, then, is Camper trying to express, by measurement, the varying proportions of the face and cranium in the different races; those differences which we express by the terms prognathism, mesognathism and orthognathism. How far can his facial angle be trusted to bring out the nicer shades of difference in the relation of face to cranium? Only, I am afraid, to a very limited extent. The points between which he draws his lines are all variable and are influenced in their position by other factors than those which depend on the degree of projection of the face. Thus an increase in the length of the face by depressing the point of intersection of the two lines reduces the angle, while an inflated glabella by pushing forward the frontal line increases the angle. The facial angle, therefore, is only calculated to give approximate results, and, indeed, in certain cases, it may even be distinctly misleading.

[1] Camper's craniological collection was not large enough to enable him to pursue such a line of work except to a very limited extent. Besides several Dutch skulls he only possessed nine crania representing eight races.

Even at the present day the problem as to how we can best discriminate with precision, the nicer shades of racial and individual difference in this respect cannot be said to be solved. Flower's gnathic index is very unsatisfactory. Thomson's method detailed in his recent splendid memoir entitled *The Ancient Races of the Thebaid*,[1] is probably the most reliable.

But anyone who studies the beautiful and artistic figures which illustrate Camper's work, will see that the two lines which, by their intersection, give the facial angle are, in many cases, very inaccurately drawn. Almost as often as not they do not pass through the points he has indicated. The angles which he gives cannot, therefore, be accepted as being in every case correct or capable of being compared with each other. Possibly the explanation of this lies in the fact that when the plates were being engraved Camper's mind was so engrossed by political worries that he was not able to exercise a proper supervision.

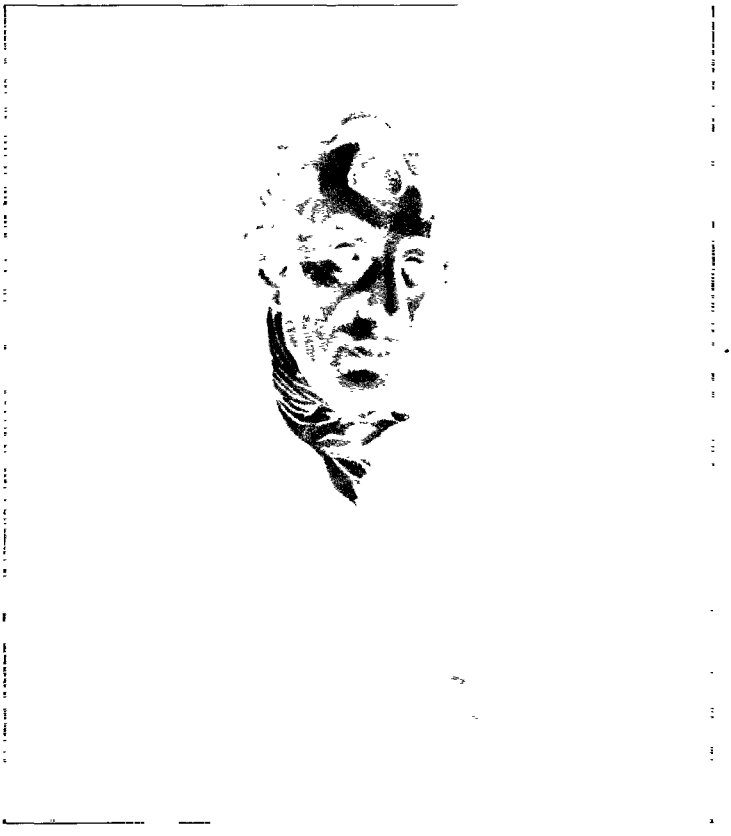
Camper's facial angle was severely criticised by Blumenbach, Lawrence and Prichard; not unfairly by the two first-named anthropologists, but somewhat too harshly by Prichard. Notwithstanding these strictures the angle found favour in France, where various modifications of it were devised; and also in America, where the celebrated Morton adopted it as one of the two measurements which he employed in framing the catalogue of his craniological collection.

Before we pass from Camper one additional point must be mentioned. In his unpublished commentaries on the bones, he calls attention to the different breadth presented by the crania of different races—the Kalmuck, the broadest, the Negro, the narrowest, and the European, intermediate in this respect between the other two. He, therefore, to some extent foreshadowed Blumenbach's classification of skulls, and showed an appreciation of the features upon which Anders Retzius, in 1846, founded his cephalic index.

[CHARLES WHITE.—1728–1813.] In Charles White we have the pleasing picture of an old doctor seeking recreation in the study of anthropology and, in the declining years of his life, publishing the results of his observations and reflections in a quarto volume entitled "An Account of the Regular Gradation in Man, and in different Animals and Vegetables from the Former to the Latter" (1799). White was a Manchester man; he was born there, educated there, and there he attained the highest distinction as a physician. His writings on professional subjects exercised a most powerful influence, and in certain directions produced most beneficial changes in the practice of medicine.[2] It is proper that we should give him his acknowledged position as a learned progressive and ingenious physician and surgeon before we speak of his work in the field of anthropology.

[1] By Arthur Thomson, M.A., M.B., and Randall MacIver, M.A., Oxford Press, 1905.

[2] Dr. Charles J. Cullingworth has written a very charming account of Charles White from the professional point of view entitled *Charles White, F.R.S.,—a great provincial Surgeon and Obstetrician of the Eighteenth Century.* London, 1904.



I am yours most faithfully

E White

In the domain of Natural Science, White drew his inspiration chiefly from John Hunter and Petrus Camper. He was the fellow student and life-long friend of the former; his written views show the influence which Camper exercised on his mind.

An additional interest is given to Charles White by his association in the latter part of his life with the brilliant and unfortunate De Quincey. De Quincey makes frequent reference to him in his autobiography, and speaks of the pleasure and profit he derived from this intimacy.[1] The side-lights which are thus let in on the character and personality of Charles White are very suggestive. In one place (p. 383) De Quincey says:—"Mr. White was in those days the most eminent surgeon by much in the north of England. He had by one whole generation run before craniologists and phrenologists, having already measured innumerable skulls amongst the omnigenous sea-faring population of Liverpool, illustrating the various races of man, and was in Society a most urbane and pleasant companion." White's craniological experience did not prevent him from making a somewhat curious professional blunder. He attended De Quincey's favourite sister and "pronounced her head to be the finest in its development of any that he had ever seen . . . . meantime," continues De Quincey, "as it would grieve me that any trait of what might seem vanity would creep into this record, I will admit that my sister died of hydrocephalus" (pp. 135 and 136—footnote).

We are also afforded a sketch of White in the capacity of a collector. "Mr. White," De Quincey tells us, "possessed a museum—formed chiefly by himself and originally, perhaps, directed simply to professional objects . . . . But surgeons and speculative physicians, beyond all other classes of intellectual men, cultivate the most enlarged and liberal curiosity: so that Mr. White's Museum furnished attractions to an unusually large variety of tastes." He then goes on to give an account of a visit to Mr. White's Museum, and after having stated that he had forgotten all the objects which lent a scientific interest to the collection he adds:—"Nothing survives except the *humanities* of the collection; and amongst these, two only I will molest the reader by noticing. One of these was a *mummy* and the other a *skeleton* . . . . but much it mortified us that only the skeleton was shown. Perhaps the mummy was too closely connected with the personal history of Mr. White for exhibition to strangers! It was of a lady who had been attended medically for some years by Mr. White, and who had owed much alleviation of her sufferings to his inventive skill. She had, therefore, felt herself called upon to memorialize her gratitude by a very large bequest, not less (I have heard) than £25,000; but with this condition attached to the gift—that she should be embalmed as perfectly as the resources in that art of London and Paris could accomplish, and that once a year Mr. White, accompanied by two witnesses of credit, should withdraw the veil from her face. The lady was placed in a common English clock-case, having the usual glass face; but a veil of white velvet obscured

[1] *The Collected Writings of Thomas De Quincey.* By David Masson, 1889; vol. i. *Autobiography from* 1785 *to* 1803, p. 384.

from all profane eyes the silent features behind. The clock I had myself seen, when a child, and had gazed upon it with inexpressible awe."

It must be admitted that White's observations regarding the obvious gradation in the animal and vegetable kingdoms contained nothing of much importance. Indeed even at the time he wrote his treatise the doctrine was by no means new. At the present day the title is apt to convey the impression that the author had some early glimmerings of the modern hypothesis of evolution; but anyone who reads the book will very soon have such anticipations disappointed. White held that species were fixed and immutable, and that they retained for all time the characters which distinguished them when they were severally created.

But not unfrequently a gem of rare value is found in a poor setting; and so it is in this work of the Manchester physician. Mr. White unearthed a great anthropological truth and used it in support of his gradation theory. He discovered that the forearm of the negro, relatively to the upper arm, is longer than the forearm of the European, and that a corresponding relationship exists between the ape and the negro. Here then is gradation, but it is a gradation of a totally different kind from that which occupied the mind of the observer. The whole of this important and far-reaching observation occupies barely three pages (pp. 52–54), and two tables (pp. 45 and 46) in White's quarto volume. At the same time we cannot accuse him of any want of diligence or care in verifying his results. He measured the arms of no less than fifty negroes. Most interesting and suggestive facts have accrued from the extension of Mr. White's observations. We now know that the different races may show very different conditions in this respect. Thus if we take the length of the upper arm as being 100, the forearm in the Chimpanzee is 94; in the Fuegian, 81·9; in the Negro, 77·7; and in the European, 73·4.

Mr. White's anthropometric work has likewise an important bearing on the ontogenetic as well as on the phylogenetic or ancestral history of man. Even as he presented them the figures relating to the Chimpanzee, Negro and European are striking and suggestive, but how much more so do they become when we reflect that in the individual development of the European, the upper limb goes through a similar evolution, and shows at different stages of growth relationships between the forearm and upper arm which correspond in turn to those seen in the ape and the negro before the limb finally attains the European type.[1]

Mr. White is sometimes spoken of as the founder of anthropometry, and in one sense, perhaps, the title is not altogether undeserved. He appears to have been the first to make, in a rational and scientific manner, measurements of the living person; but anthropometry is a general term and includes observations by measurements on the dead as well as on the living body, and from this point of view it must be acknowledged that Camper, Soemmering and Blumenbach had already entered the anthropometric field.

[1] Thus taking the length of the upper arm as being 100, the length of the forearm in the European fœtus of 2½ months is 90; of 6 months 77; and in the adult 73·4.

BLUMENBACH.

[JOHANN FRIEDRICH BLUMENBACH, 1752–1840.] The Anthropological Society of London, when only two years old, published a volume entitled "The Anthropological Treatises of Johann Friedrich Blumenbach with memoirs of him by Marx and Flourens, and an account of his Anthropological Museum by Professor R. Wagner." It speaks well for the enterprise and discrimination of the youthful society that at this early period of its career it should have engaged in so useful and so important a work. In no way could it have better stimulated an interest in the subject which it was its object to promote.

Blumenbach's life-work was carried out at Göttingen, where he held a chair in the Faculty of Medicine, and as a direct result of this work, anthropology, for the first time, was placed on a rational basis. A profound student of Natural History in its widest and most philosophical sense, Blumenbach early directed his attention to the special study of man. While a student he became associated with a learned but whimsical old professor named Büttner, who had retired from active work, and who devoted his time to collecting, reading and reflecting.[1] Büttner made no attempt to arrange the objects which he had gathered around him; he was absolutely without method and his sole aim was the gratification of his own personal curiosity. Except by conversation (and he was a talkative old man) he made no effort to utilise his vast stores of knowledge for the good of others or the advance of science. Such characters are not unknown at the present day. Blumenbach was employed to reduce this chaos into order. This work and his association with the eccentric owner of the collection, deepened his interest in anthropology and afforded him the means of writing his famous thesis *On the Natural Variety of Mankind* for the degree of Doctor of Medicine. This was the first of many editions of the celebrated dissertation.

Blumenbach was a man of massive intellect, but it must be admitted that he had not the versatility or perceptive genius of Camper, nor yet the morphological intuition of his two English followers and contemporaries. He turned the whole force of his great powers to the study of man. He felt with Rousseau[2] that "the most useful and the least successfully cultivated of all human knowledge is that of man; and the inscription on the Temple of Delphi (Know Thyself!) contained a more important and difficult precept than all the books of the moralist."

Although each succeeding century had done something to dissipate the fabulous atmosphere which has at all ages clung so tenaciously around the Natural History of man, still the credulity of the period in which Blumenbach lived was very remarkable. From the time of the early classical writers, all sorts of stories of mythical varieties of mankind had been handed down—men with eyes situated in their shoulders, men with one leg, or with their feet turned backwards,

[1] See Blumenbach's own account which is quoted by Marx in his *Life of Blumenbach*. Publications of the Anthropological Society of London, 1865.

[2] *Discours sur l'Inégalité* (preface).

men with dogs' heads, or, indeed, with no heads at all. Even as late as the sixteenth century a naturalist of note seriously describes mermen who lived in the sea and who had their hinderparts covered with scales.

The eighteenth century also had, as indeed every century must have, its treasured mythical beliefs, although I would fain hope that these were of a somewhat taller order than those which disturb our judgment at the present day. Giants stalked the land in the imagination even of scientific men. Fossil bones of large animals such as the elephant were held to be human and to have belonged to a race which attained a stature of from 17 to 20 feet. In the fifth volume of the supplement of his classical work even Buffon lent his countenance to such a view and figured and described such bones as affording evidence of human giants. Blumenbach dealt the death-blow to such a hypothesis, although it is only right to add that the mistake had previously been pointed out by the anatomist Riolan. But even at the present time and in modern works on anthropology exaggerated views are expressed on this matter. We may take it as proved that there is no absolutely authentic record of the human stature ever having exceeded 8 feet or at most 8 feet 3 inches; and in these cases the inordinate growth is due to a morbid process which appears to be closely akin to the remarkable disease termed "acromegaly."

Another conception, and one which was not altogether discountenanced by Blumenbach, was the view which was believed by some to explain the thick swollen lips and flat nose of the negro. The negro mothers carry their infants on their backs, and "in the violent motions required in their hard labour, as in beating or pounding millet, the face of the child is said to be constantly thumping against the back of the mother."[1] By this rude treatment the face of the negro child was supposed to be moulded into shape; but no attempt was made to explain how the process of bumping produced exactly opposite results in the case of the nose and the lips—reducing the prominence of the former and increasing the projection of the latter.

Let us take another example of a curious belief entertained in the eighteenth century. Linnæus in his Natural System introduced within the species *Homo sapiens* a wild variety of man to whom he gave the name of *Homo sapiens ferus*, and supposed him to be the "original man of nature," whatever that might be. The belief in such a variety was very prevalent at this period. Many instances had been described, but the only case of which we have an authentic history is that of "Wild Peter," and this we owe to Blumenbach. The article which he wrote on the subject may be said to have disposed, for all time, of the belief in the existence of the so-called "Natural Man." Briefly put, the story of Wild Peter is as follows:—A naked brown boy was discovered in 1724 in the neighbourhood of a village in Hanover. He could not speak, and he showed savage and brutish habits and only a feeble degree of intelligence. He was sent

[1] Lawrence, *Lectures on Comparative Anatomy, etc.*, Ninth edition, p. 265. John Taylor, London, 1844.

to London and placed under the charge of Dr. Arbuthnot, the friend and associate of Pope and Swift. Here he became a noted personage, and the subject of keen discussion amongst philosophers and naturalists. One of his admirers, more enthusiastic than the others, declared that his discovery was more important than that of Uranus or the discovery of thirty thousand new stars. It was into this arena of debate that Blumenbach entered, and made known certain facts regarding the origin of Wild Peter, which he alone had taken the trouble to investigate, and which showed how absolutely futile all these philosophic theories and vapourings had been. He pointed out that when Peter was first met he wore fastened round his neck the torn fragment of a shirt, and further that the whiteness of his thighs, as compared with the brown colour of his legs, clearly indicated that at no distant date he had worn breeches but no stockings. But he also was able to piece together certain significant facts which proved that Peter was the dumb child of a widower, and that he had been thrust out of his home by a new stepmother.

In reading the accounts of these so-called wild children, and more especially the story of Wild Peter, in the light of our present knowledge, there can be little doubt that many of them were microcephalic idiots, and the interest of this lies in the fact that modern research renders it probable that certain of these unfortunate microcephales exhibit characters which distinguished an early stem-form of man. A grain of reason may therefore exist in the fancies of the early philosophers in regard to "Man in the wild state." A distinguished physician has classed microcephales under the title of "Theroid," and he and others have called attention to their brutish and ape-like characters, both mental and bodily.[1] Blumenbach makes the remark that in anthropology, as in any other branch of natural history, "scarcely any story, however absurd and foolish, has ever been told which does not contain some foundation of truth, but perverted by hyperbolical exaggeration or misinterpretation."

Blumenbach's range of knowledge was remarkable. He read everything which related to man, but chiefly histories and accounts of voyages and travels. In dealing with this chaotic mass of material he showed great judgment and power of discrimination in sifting out the true from the false and the useful from the useless. Out of the sifted matter grew the foundations of modern anthropology. One cannot read his writings without being amazed at the extent of his erudition, whilst the simplicity and modesty of his style make his writings most attractive to the reader. In these respects, if in no other, and I am afraid we cannot push the comparison further, we see some of those traits of mind which so largely distinguished Charles Darwin, the greatest philosopher of the succeeding century.

By the information which he gained by his reading and by direct observation, Blumenbach arrived at his classification of mankind into five varieties under the

[1] Laycock, *Journal of Mental Science*, 1863; Carl Vogt, *Ueber die Mikrocephalen oder Affen-Menschen; Arch. für Anthrop.*, Bd. 11, p. 129, 1867; Giacomini, *I cervelli dei Microcefali*, Torino, 1890; Cunningham and Telford Smith, "The Brain of the Microcephalic Idiot," *Trans. Roy. Dub. Soc.*, vol. v, 1895; and many other papers.

one species, viz., the Caucasian, the Mongolian, the Ethiopian, the American, and the Malay varieties. As we have noted, Linnæus and others had attempted at an earlier period to classify mankind, but none had approached the subject with the store of knowledge possessed by Blumenbach, and consequently his views on this matter received at the time universal acceptance. His classification was founded on a rational basis. Colour, hair, and bodily structure, so far as he knew it, and more especially the form of the skull, were the characters upon which Blumenbach placed reliance in discriminating between the different races of mankind. He regarded the Caucasian as being the primeval and highest race, and the others as having arisen from it by a process of degeneration. The Mongolians and Ethiopians, in his opinion, were the two extremes of two degenerative divergences in two opposite directions. The Americans he considered to stand intermediate between the Caucasian and the Mongol, and the Malays midway between the Caucasian and the Ethiopian.

In this manner the work which Buffon began was still further advanced, and the important branch of anthropology which we term ethnology took definite shape. But in referring to this great step in the progress of anthropology, it would be very wrong to omit to mention the work of the anatomist Soemmering. Blumenbach and he came together as fellow-students at the University of Jena. A warm and stimulating friendship was the result. Soemmering's contribution to the advance of ethnology consisted in his classical investigations into the comparative anatomy of the Negro and the European.

We have noted that Blumenbach, in his comparison of the different races of mankind, laid particular stress upon the form of the skull. Although by no means the first to study this part of the human skeleton from the ethnological point of view, he certainly was the first to do so in a rational way, and, therefore, he must always be regarded as the real founder of that branch of anthropology which we designate as craniology. He had gathered together a craniological collection, which, although insignificant as compared with the collections of the present day, was for that time unique, both as regards the number and the variety of the specimens it contained. The fame of the Göttingen collection was world-wide. It became the fashion to visit the Blumenbachian Museum, to have the differences which distinguish the different cranial types pointed out, and to indulge in sentimental rhapsodies upon the beauty and symmetry of the young female Georgian skull, which was considered to represent the highest type of all.

The impulse which Blumenbach gave to the study of craniology can be felt at the present day. Indeed, many think that an excess of zeal has been shown in this department of anthropological work, or, as Hagen has put it, that "craniology has become the spoiled child of anthropology." The present indications in this important study—a study with which the names of Broca, Flower, and Turner must ever be honourably associated—are, I think, more or less clear. Huxley pled for a morphological method of measurement, and there can be little doubt that what we want is a fuller knowledge of the precise morphological meaning and

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value of the results obtained by the various methods that are at present in force.

[JAMES COWLES PRICHARD, 1786–1848.] Two of the most distinguished of our British anthropologists—James Cowles Prichard and Edward Burnett Tylor—have sprung from the ranks of the Society of Friends. It is a matter of common knowledge that one of the leading characteristics of this Society is the interest which it takes in the progress and well-being of mankind. It is, therefore, not difficult to conceive that the spirit engendered by early association with a Society which nourishes such sentiments would be particularly favourable to the cultivation of a wider scientific knowledge of mankind, and thus to the development of an interest in anthropological pursuits.

A leading authority has said that Prichard should be regarded as being perhaps the greatest anthropologist of his period, and when we remember that the period referred to included Blumenbach, we must recognise that this is high praise. I am not inclined to quarrel with this estimate of Prichard's work; indeed, I am more disposed to reiterate the statement in a more unqualified manner. At the same time, it must be admitted that there is some difficulty in estimating the relative merits of Prichard and Blumenbach—the methods and work of the two men were so essentially different. Still, it has always appeared to me that Prichard has never received his full measure of appreciation either at home or abroad. He was overshadowed during his life-time by Blumenbach. Blumenbach lived in a great centre of intellectual activity where he was brought into constant contact with the leaders of all departments of scientific thought. Endowed with a striking personality, and working at a new subject by new methods, his fame was noised abroad and he became the predominant figure in the anthropological world. Prichard, on the other hand, led the quiet and studious life of a provincial physician in Bristol, remote from those influences which go to build up a reputation. His works alone spoke for him; and now that we have come to a generation which knows these two great leaders only by their writings, we are able to take a dispassionate view of the matter. Blumenbach was essentially a physical anthropologist, and in this department I think we may say he was unexcelled. Prichard had a much broader grasp of the subject. An accomplished anatomist, he was, at the same time, one of the most learned philologists of his day and also a noted psychologist, and he brought his extensive knowledge in each of these branches to bear upon his ethnological work.

It is a matter not without interest that both Blumenbach and Prichard entered the anthropological arena by a similar portal. We have seen that the leading work of the former was in the first instance prepared as a dissertation for the degree of Doctor of Medicine in the University of Göttingen. In like manner Prichard presented, in 1808, his Thesis entitled *De Humani Generis Varietate* for the degree of Doctor of Medicine in the University of Edinburgh. It affords me pleasure to be able to show the members of the Royal Anthropological Institute

the official copy of this thesis which I have brought with me from the University Library for the purpose.

This thesis constituted the starting-point of Prichard's anthropological work. Five years later, much expanded, it was published under the title of *Researches into the Physical History of Mankind*—a book which, after several editions, finally appeared shortly before the death of the author as a great work of five volumes. Speaking of Prichard at the meeting of the British Association in Bristol in 1875, Professor Rolleston remarked: "And by the employment of the philosophy of continuity and the doctrine of evolution with which the world was not made acquainted till more than ten years after Prichard's death, many a weaker man than he has been enabled to bind, into more readily manageable burdens, the vast collections of facts with which he had to deal. Still his works remain, massive, impressive, enduring—much as the headlands along our Southern Coast stand out in the distance in their own grand outlines, whilst a close and minute inspection is necessary for the discernment of the forts and fosses added to them, indeed, dug out of their substance, in recent times."[1]

Although Prichard discussed all matters relating to his subject in a scientific and impartial manner, the conclusions he arrived at were always orthodox and were expressed in such a way as to propitiate and not to offend constituted authority. In this, there cannot be a doubt, he was perfectly sincere. It is said that his father, when he observed the direction the investigations of his son were taking, enjoined him to write nothing which would tend to undermine the literal interpretation which was at that time given of the Scriptural account of the origin of man. How far this may have influenced him, it is impossible to say, but those who knew him best were assured that his inclinations entirely coincided with the injunction he had received from his father.

Like Buffon, Camper and Blumenbach, Prichard maintained that the different races of man should be included under one species, and that they had attained their wide-spread distribution over the world by dispersion. He held advanced ideas in regard to the transmission of occasional variations, and thought that to some extent this might account for the diversity which characterises the different races. His views on the question of skin colour were ingenious and interesting. Buffon and Blumenbach held that the original colour was white and that the different shades seen in the different races were later acquisitions. Prichard was of the opinion that the original pair from whom all mankind has sprung were black. He was impressed by the observation of John Hunter that cultivation tends to modify the intensity of colour in plants and animals, and he came to the conclusion that civilization had operated upon mankind so as to reduce the pigment in the skin and produce the white varieties. Such a conception has now only a historical interest. It is impossible to come to any satisfactory conclusion as to the skin-colour of the early stem-form of man. I believe that there are

[1] *Scientific papers and Addresses by George Rolleston.* Edited by Sir William Turner, 1884, vol. ii, p. 902.

some who incline to Prichard's view, but there is absolutely no evidence of any kind in support of such a supposition. The conditions present amongst the anthropoid apes do not help us: indeed, they render the problem more difficult because in them also we see a variety of skin-colours. The gorilla has a black satiny skin like that of the Negro; the chimpanzee (*Troglodytes niger*) has a skin which may be very nearly white, but which varies considerably in different specimens, and is usually reddish brown on the face and hands[1]; the orang has a coppery tinted skin; and amongst the various species of Gibbon we meet with different shades.

Prichard writes an excellent chapter on craniology; indeed it is extraordinary how a physician spending the most of his day in the pursuit of an engrossing profession could find time to pursue his favourite study from so many points of view. Blumenbach had classified skulls by the outline which they present when viewed from above, or, in other words, by the appearance of the Norma Verticalis. Prichard contends that, however useful such an inspection may be, neither it, nor the facial angle of Camper nor any other single character can be accepted as a satisfactory basis of classification. "In order," he remarks, "to form a correct idea of the varieties in the shape of the head which are peculiar to individuals and races, it is necessary to examine every part and to compare all the different aspects which the skull presents." The truth of this observation is fully realized at the present day.

We need not enter into Prichard's method of craniological classification. It contains little of importance to modern workers; but I would like to quote a passage from his description of the narrow elongated type of skull, which shows how clearly he appreciated one of the influences which tend to modify the shape of the cranium. He says: "In these skulls the principal characters are referable to the idea of lateral compression; the temporal muscles having a great extent, rising very high on the parietal bones and being very large and powerful, subject the head to a force producing the effects of lateral compression and elongation." Only one point is wanting in this description: he does not correlate the degree of compression with the size and weight of the lower jaw.

[1] Professor A. F. Dixon, of Trinity College, Dublin, writes me that "the chimpanzees which have lately been in the Zoo varied much in complexion. The female we have at present is reddish brown, the skin of the face being distinctly redder than that of the hands and feet. The male—older than the female—is a duller, lighter, colourless red, with dark irregular patches."

The following story, taken from William Smith's *A New Voyage to Guinea* (1744) and quoted in Huxley's *Man's Place in Nature*, indicates the ideas of the natives in regard to the complexion of the chimpanzee. William Smith, speaking of a living specimen, says:—"I gave it in charge to one of the slaves, who knew how to feed and nurse it, being a tender sort of animal; but whenever I went off the deck the sailors began to tease it—some loved to see its tears and hear it cry; others hated its snotty nose; one who hurt it, being checked by the negro who took care of it, told the slave he was very fond of his country-woman, and asked him if he should not like her for a wife; to which the slave replied, 'No, this no my wife; this a white woman—this fit wife for you.'"

[SIR WILLIAM LAWRENCE, 1783–1867.] Topinard tells us that when he began the study of anthropology, Broca advised him to read the lectures of Sir William Lawrence.[1] Although a hundred years all but ten have passed since these lectures were delivered, I am in the habit of giving the same advice to my Anthropological Class in the University of Edinburgh; and these are the same lectures which, at the time, raised such a fierce storm of theological protest that the author had to publicly announce that he had suppressed the volumes. The incident is full of interest, and throws a clear light upon the difficulties which the early anthropologists had to encounter. Sixty-seven years earlier Buffon had to bow before a similar storm.

Lawrence was a surgeon of great eminence in St. Bartholomew's Hospital in London.[2] At the early age of 32 he was appointed Professor of Anatomy and Surgery to the Royal College of Surgeons, and in the three subsequent years (1816, 1817, and 1818) he delivered his famous *Lectures on Comparative Anatomy, Physiology, Zoology, and the Natural History of Man.* These lectures were immediately denounced, and Lawrence (to use his own words) was charged "with the unworthy design of propagating opinions detrimental to society, and of endeavouring to enforce them for the purpose of loosening those restraints, in which the welfare of mankind depends." Mr. Abernethy, with whom Lawrence had been apprenticed, and under whom he had acted for many years as demonstrator of anatomy, took a prominent part in the attack. In the introduction to the lectures delivered in 1817, Lawrence defended himself with great dignity, eloquence, and vigour, and pled for freedom of enquiry and freedom of speech. "These privileges," he insisted, "shall never be surrendered by me. I will not be set down nor cried down by any person, in any place, or under any pretext. However flattering it may be to my vanity to wear this gown, if it involves any sacrifice of independence the smallest dereliction of the right to examine freely the subjects on which I address you, and to express fearlessly the result of my investigations, I would strip it off instantly."

It may seem curious that in the face of this protest, and considering his strong personality and the inflexible character which he exhibited in later years, Lawrence should have consented to suppress the obnoxious volumes. It is said to have been the only occasion in the course of an unusually long life, and a life by no means free from strife, on which he gave way before opposition. One of his biographers (the accomplished writer in the *Dictionary of National Biography*) believes that it was due to the small value that he put upon his conclusions. I can hardly imagine that this is the correct explanation. He was a comparatively young man. Surgery and not anthropology was his aim in life, and he must have seen that if he continued to brave public opinion, his professional career would be seriously endangered. And what was all this controversy about? On matters so small that it is needless

[1] *Éléments d'Anthropologie Générale*—par le Dr. Paul Topinard, 1885, p. 84.

[2] In the later years of his life he had among his pupils Sir William Turner and Sir George Humphry.

SIR WILLIAM LAWRENCE.

to waste time in going into them. Indeed, the conclusions which so greatly disturbed the public mind might be given forth to-day from any platform without producing the slightest flutter in the most sensitive breast. And yet Lord Chancellor Eldon refused to sustain an injunction to restrain a publisher from selling a pirated edition of the work, and gave judgment in the following words: "Looking at the general tenour of the work and at many particular parts of it, recollecting that the immortality of the soul is one of the doctrines of the Scriptures, and considering that the law does not give protection to those who contradict the Scriptures, and entertaining a doubt, I think a rational doubt, whether this book does not violate this law, I cannot continue the injunction."[1]

For a time the book was in great demand, and nine editions were published without the consent of the author. No doubt, the notoriety which the work had attained to some extent led to the large sale, but, apart from this, the lectures possess a high scientific value. This is especially the case with the chapters which deal with the natural history of man. These represent twelve lectures which were delivered in 1818, and in which the physical characters of man are described with a great breadth of view. The arrangement and mode of treatment of the several branches of the subject might be followed with advantage at the present time, and the substance is distinctly in advance of the anthropological literature of the day. The facts, no doubt, are largely borrowed from Blumenbach, but Lawrence handles these facts in a more illuminating way, and shows a deeper insight into their morphological significance. Indeed, in one or two places he almost shakes himself free from the obstructive doctrine of the immutability of species. Speaking of "original" man, he asks the question, "Did he go erect or on all fours?"

Amongst certain of the younger generation there seems to be a belief that the doctrine that characters acquired during the lifetime of the parent are not transmissible to the offspring is one of comparatively recent growth. Three years ago I even heard this doctrine spoken of as "Weismannism" in a debate which took place in Section H of the British Association. It is true that Weismann restated the doctrine with a logical clearness and force which at once caught the public mind; but many years before—in fact, nearly a century before—the general principle had been recognised and applied to the study of man. The discussions which took place in the eighteenth and early part of the nineteenth century, as to the single or multiple origin of mankind, were bound to direct attention to the causes at work in producing the striking physical differences which distinguish the different human races, and more particularly to the effect which environment exercises in this direction. If all mankind have descended from one original pair and have become dispersed from one centre, how do we find some black and others white; some woolly haired, and others straight haired; some with protuberant jaws, and others with a face which lies almost entirely under shelter of the fore-

[1] *Reports of cases argued and determined in the High Court of Chancery during the time of Lord Chancellor Eldon.* Edward Jacob, 1821, 1822, 2 and 3 George IV. 1828, p. 471, March 21, 1822, Lawrence & Smith.

head? These were questions which were hotly debated, and the influence which environment exerted in modifying the bodily characters of an individual, and the possibility of these being transmitted to the offspring, did not escape the notice of the anthropologist of that period.

The great Buffon may be cited as one who held very decided views on this matter. To him climate and diet offered a sufficient explanation of the variations exhibited by the several races of mankind. Primitive man was white, and racial distinctions had arisen simply by the different surroundings and conditions into which his descendants had been introduced. Clearly, then, Buffon was a believer in the view that acquired characters were capable of being transmitted. This is what he says on the subject: "Upon the whole, every circumstance concurs in proving that mankind are not composed of species essentially different from each other; that, on the contrary, there was originally but one species, who, after multiplying and spreading over the whole surface of the earth, have undergone various changes by the influence of climate, food, mode of living, epidemic diseases, and the admixture of dissimilar individuals; that at first these changes were not so conspicuous, and produced only individual varieties; that these varieties became afterwards specific because they were rendered more general, more strongly marked, and more permanent, and by the continual action of the same causes; that they are transmitted from generation to generation, as deformities or diseases pass from parents to children." This is indeed pure and simple Lamarckism before the days of Lamarck. As we have already noted, Camper held views on this question very similar to those of Buffon.

It is somewhat difficult to arrive at a clear perception as to what Blumenbach thought on this important matter. Profoundly impressed by the belief that all mankind had a common origin, he discusses at considerable length, but apparently not entirely to his own satisfaction, the causes which he considers have produced the differences which separate the various races. In the first edition of his dissertation *On the Natural Variety of Mankind,* he advocates a view which in all essential points does not materially differ from that of Buffon. In the third edition we find that he modifies this opinion. He now introduces a vague intermediate principle which he terms "the formative force," and he states that it is this, worked upon by the surroundings and external conditions, which has produced the black skin, the woolly hair, and the protuberant face of the negro, and which has modified other races in other ways. His attitude of mind towards the doctrine of the transmission of acquired characters is also difficult to determine with any degree of precision. Speaking of the supposed inheritance of mutilations, he refuses to commit himself one way or the other, but at the same time he remarks "I am persuaded myself that climate is the principal cause of the racial face." It is evident that in the consideration of these important questions Blumenbach, even in his later writings, had not got much beyond the stage of Buffon. He apparently saw the weak points of Buffon's position, but his efforts to strengthen them did not carry him very much further.

It has been claimed for Blumenbach by certain modern writers that he nearly anticipated certain of those principles which were enunciated by Darwin, and which have during the last half-century revolutionised the entire range of biological science. My study of Blumenbach's writings has not conveyed to me any such impression.

The discussion of the causes which have produced the varieties of the human species is taken to an altogether higher platform by our two English anthropologists—Prichard and Lawrence—both of whom were contemporary with Blumenbach. The doctrine of the non-transmissibility of acquired characters is stated by both of these writers in the clearest and most precise manner. "Nothing," says Dr. Prichard, "seems to hold more generally, than that all acquired conditions of the body, whether produced by art or accident, end with the life of the individual in whom they are produced. . . . But for this salutary law, what a frightful spectacle would every race of animals exhibit! The mischances of all preceding times would overwhelm us with their united weight, and the catalogue would be continually increasing, until the universe, instead of displaying a spectacle of beauty and pleasure, would be filled with maimed, imperfect and monstrous shapes."

But Lawrence is still more explicit in his recognition of this fundamental principle. He contends that "in all the changes which are produced in the bodies of animals by the action of external causes, the effect terminates in the individual; the offspring is not in the slightest degree modified by them, but is born with the original properties and constitution of the parents and a susceptibility only to the same changes when exposed to the same causes" (p. 347). He fully appreciates what of late years has occupied so prominent a place in the minds of those who have taken a part in the discussion on the alleged physical deterioration of the people, viz., that climate, locality, food and mode of life exercise a most potent influence in altering and determining the physical characters of man; but he maintains most strenuously that these effects are confined to the individual, that they are not transmitted to the offspring, and have, therefore, absolutely no influence in modifying the race.

Having thus dismissed environment or external influences as being outside the range of the conditions which produce racial changes, and as being entirely inadequate to account for those signal diversities which constitute racial differences, Lawrence is faced with the necessity of approaching the problem from another point of view. In a brief sentence he lays down what is nothing else than the modern doctrine of evolution. "Racial differences," he remarks, "can be explained only by two principles already mentioned, namely, the occasional production of an offspring with different characters from those of the parents, as a native or congenital varitey; and the propagation of such varieties by generation." He considers that domestication is favourable to the production of these congenital and transmissible variations, and he deplores

the fact that whilst so much care and attention is paid to the breeding of our domestic animals, the breeding of man is left to the vagaries of his own individual fancy. But I need not pursue this subject further. I have said enough to make it evident that Lawrence taught an anthropology which was much in advance of his time, and that in much that he wrote he to some extent anticipated the modern doctrine of evolution; and yet Lawrence ceased from all anthropological work at the early age of thirty-five. The odium which he had incurred by the delivery and publication of his celebrated lectures drove him from the field, and he never entered it again. Henceforth, he devoted himself solely to professional pursuits. This was a sad loss to anthropology. If in his youth he was capable of producing a work so suggestive and so advanced, it is impossible to avoid the belief that by riper experience and more mature reflection he would, had he continued his researches, have greatly contributed to the progress of the subject. He lived to see the publication of *The Origin of Species*; Huxley's *Man's place in Nature*; and some part of Broca's early work. It is difficult to conceive that he had lost all interest in his early exploits in the same domain, and we can imagine the pleasure which these epoch-making works afforded him.

And now I have completed the task which I had in my mind when I began this address. If the eighteenth century was the period in which ethnology took form, it was in the nineteenth century that anthropology in the true and full sense of the word became established. The time had come when the foundations upon which the science of man rested were to be greatly widened. It was recognised that the narrow outlook which had hitherto been deemed sufficient would no longer serve to give the expansive survey of the manifold aspects of our subject which is necessary for its comprehensive study.

There can be no question that the crowning event of this epoch and the one which enlarged the prospect of the anthropologist more than any other was the publication of Darwin's *Origin of Species.* The study of anthropology was at once placed upon an altogether different, upon an infinitely higher platform. The controversy which had raged so long and which had divided anthropologists into two bitterly opposed camps—the controversy as to the single or multiple origin of man—became futile and childish. A new era in the history of anthropology opened—the era in which we work—and who could have foreseen its fruitfulness? Who could have imagined the many enchanting vistas which are now revealed to the anthropologist—vistas which lure him on into the most varied fields of delightful work?

NOTE.

The portrait of Petrus Camper has been taken from the French translation of his Dissertation upon the different features presented by men of different races and different ages (for reference see p. 9, footnote 2). The engraving is from a drawing by Reinr. Vinkeles, dated 1778.

I am indebted to Dr. Charles J. Cullingworth for the portrait of Charles White. He not only most generously gave me permission to introduce this illustration but also supplied me with the proof copy from which the block has been prepared.

I regret that I do not know the history of the old engraving of Blumenbach. It was picked up in a print-shop in Germany.

The portrait of Prichard I owe to the kindness of his grandson, A. W. Prichard, Esq., M.R.C.S., Bristol, who has also been so good as to accord me permission to use it for the purpose of illustrating this address.

Dr. Norman Moore furnished me with the photograph from which the portrait of Sir William Lawrence has been taken. It is from an engraving from a painting by Pickersgill. I am deeply indebted to Dr. Norman Moore, not only for the trouble he took in obtaining a satisfactory photograph, but also for allowing me to use it in this address.

SKULLS FROM NEW CALEDONIA.

By David Waterston, M.A., M.D.

[With Plates VI–VII.]

The collection of skulls which forms the subject of this communication is contained in the Anatomical Museum of Edinburgh University. I am indebted to the kindness of the Conservator, Professor D. J. Cunningham, for the opportunity of examining and measuring them, and to him I wish to express my warm thanks for this permission, and also for the kind assistance he has given me during the course of my investigations.

The series of skulls was presented to the museum by Dr. Ramsay Smith, who obtained all the specimens in the island of New Caledonia, a locality which is not well represented in craniological collections in this country. Dr. Barnard Davies[1] gives the measurements of six specimens, in his *Thesaurus Craniorum*, and thirteen specimens[2] are contained in the Museum of the Royal College of Surgeons. The skulls were all labelled as "Kanaka" by Dr. Ramsay Smith. This term, however, has no true racial significance. Barnard Davies states that it is the name applied by foreigners to the natives of the Polynesian Islands generally. "In the native language of the Sandwich Isles, Kanāka means a man, and Kanakā men generally. Kanaka is at times applied to Marquesan Islanders, and even to New Caledonians, a race that there cannot be any pretence to confound with Polynesians, even using this term in a very indiscriminate and comprehensive manner."

Now-a-days, this term is merely a general name for the coloured labourers who are imported in large numbers from many of the islands of the Pacific to work in the sugar plantations in Western Australia, and among these labourers are found representatives of many different races. The value of a small collection of such crania would not therefore be great.

We have, however, been able to ascertain that the skulls were all obtained in the island of New Caledonia, which is the principal French possession in the Pacific, and which is used as a convict settlement, and presumably were the crania of inhabitants of that island.

The inhabitants of the Pacific islands in this region, so far as is already known, belong mainly to two great divisions, the Melanesians or Papuans, and the Polynesians or Mahoris, possessing characteristics in colour, in hair and in shape of head by which they can be clearly distinguished one from another.

[1] *Thesaurus Craniorum*, p. 308.
Catalogue of Osteological Specimens, part 1.

Papuan crania, however, exhibit considerable variety in form and in proportion, and, in addition, the practice of artificially flattening the back of the head prevails to a considerable extent among individuals and, it may be, also among tribes of the natives of New Guinea, who are Papuans, and the same custom is found in other localities. The island of New Caledonia lies to the south of the Solomon Islands, about 800 miles to the east of the coast of Australia, and the people are said to be strongly Papuan in feature, *i.e.*, the skin is sooty-brown or black in colour, the hair is black and frizzly, and the beard is well developed.

The inhabitants are rapidly diminishing in number from disease and from warfare.

From the specimens which he examined, Barnard Davies found that the crania from this island exhibited on an average an extraordinary degree of length, height, and narrowness, from which he applied the name of hypsi-stenocephali to the crania of this series.

The skulls which I have examined were obtained from different parts of the island, some from Noumea, which is the capital, and one from Bouloupari, and all with two exceptions, were the crania of adults, the two exceptions being, one, the skull of a youth of about sixteen, and the other that of a young girl, which had been presented to Sir Wm. Turner, and was labelled "Tribe de Kanala."

I. CRANIOSCOPIC EXAMINATION.

The following is an account of the general characters exhibited by the individual crania.

The catalogue numbers of the crania are "Group 28, sub-group L," and the numbers in this sub-group are 1 to 8.

No. 1.—This was the cranium of an adult male, in which the left parietal bone presented two openings, in the region of the parietal eminence. These were probably the result of an injury, which had been inflicted some time before death, and were situated in a somewhat circular depressed area, which measured 16 cms. in its maximum diameter.

The hinder of the apertures was roughly circular, and was 10 mm. in diameter, while the anterior was rather irregular in shape, and measured 30 mm. by 15 mm. in its widest part. The edges of each were bevelled and smoothed off, indicating that the holes had been present some time before death.

The coronal suture was partially obliterated at the sides below the level of the temporal ridges, but otherwise the sutures showed no unusual arrangement.

The cranium was long and narrow, exhibiting a high cranial vault. The curvature of the vault was rather low in the frontal region, and the highest point lay between the parietal eminences.

The skull was rather ill-filled and was very narrow in the frontal region. The right parietal eminence was very prominent, but the interparietal suture was depressed and sunken in its hinder part. The occipital region was narrow, and

projected backwards as a rounded elevation above the level of the superior curved line.

The glabella was large and prominent.

There were no teeth in the upper jaw, but the sockets were normal, and five teeth which remained in the lower jaw were of average size and were normal.

The nasal bones were highly curved, and arched forwards in their lower part, and the zygomata were wide and prominent.

The nasal spine was short and blunt, and the lower margin of the anterior nasal orifice was rather rounded. The lateral margin on each side passed downwards at its lower end on to the facial aspect of the maxilla, and blended with the elevation of the socket of the central incisor tooth. There was a small "prenasal fossa" on either side, lying between this continuation of the lateral margin and a "paraseptal line" which ran outwards on the floor of the nose, from the root of the anterior nasal spine to the lateral wall.

No. 2.—This was the skull of a young individual, probably male.

From the dentition, the age appeared to be about 16 years. The characters of the sutures corresponded, and otherwise the cranium showed no unusual features.

The most important feature of this skull was the character of the anterior nasal orifice, which was very striking, being remarkably wide and short, while its lower margin was indistinct, so that the floor of the nasal fossae was continuous directly with the facial aspect of the maxilla, without any intervening ridge.

The vault of the skull was smooth and rounded, but the specimen was too immature to show any distinct ethnic characters, beyond that already referred to.

No. 3.—This was the skull of an adult female.

The vault of the skull was high and narrow, and the slope of the frontal bone was moderately vertical, the highest part of the vault lying between the parietal eminences, which were moderately well developed. The occipital region was narrow, and resembled that of the first skull. The molar teeth which were present were large and massive.

The right central incisor had been absent for some time, and the socket had been absorbed, and the condition suggested that it had been removed at an early date, as is done at puberty by the natives of Australia.

The anterior nasal orifice was again of a low type, having no distinct lower margin, and the lateral borders passed downwards on to the facial aspect of the maxilla. On the left side it passed to the socket of the lateral incisor tooth, but was very indistinct, while on the right side it was obscured by some alteration in the texture of the bone at the lower margin of the nose.

The nasal spine was not present, nor was there any paraseptal line on the floor of the nose, so that there was no distinct prenasal fossa.

No. 4.—This was also the skull of an adult male.

The sutures showed the remains of the metopic suture above the nasion, and an epipteric bone was present on the right side. The left nasal bone was larger

than the right. The latter failed to reach the fronto-nasal suture, and the internasal suture was, therefore, deflected to the right at the upper end.

The cranium in this specimen was narrow also, and the vault of moderate height, the highest point being between the bregma and the parietal eminences. The occipital region showed a formation similar to that in the first specimen, and there was a slight degree of flattening of the right parieto-occipital region. The parietal eminences were large and prominent, but the skull was rather ill-filled.

The facial region was somewhat different from that of any of the other crania. The face was short and very broad on account of a great development and outward thrust of the zygomatic arches, and the orbits appeared to be much wider than in the others.

The anterior nasal orifice was short and broad, and the root of the nose wide and heavy, of a low type. The lower margin of the nasal orifice was indistinct, and the nasal spine was short, and there was no paraseptal line. The lateral margin of the orifice passed in a faint line to the socket of the central incisor tooth on the right side and to that of the lateral incisor on the left.

A slight prenasal fossa with indistinct boundaries was present. The molar teeth were present in the upper jaw and were large and massive. The lower jaw showed only a slight mental prominence, and the horizontal ramus was rounded rather than flat, and narrow in its vertical diameter.

No. 5.—This cranium differed in several respects very markedly from any of the former specimens. It was very long and narrow, and the parietal eminences were indistinct. The muscular ridges were feeble, although the skull was undoubtedly that of a male. The vault was high and the parietal regions were well-filled. The face was highly prognathous from the projection forwards of the alveolar margin. The anterior nasal orifice was narrow, and presented a sharp lower margin and a prominent nasal spine. The five teeth which were present, and the sockets of the others, showed no abnormality. The palate was long and narrow.

No. 6.—In general contour this skull resembled fairly closely the former specimen, but it was not quite so long nor so high. There was a large epipteric bone on the right side. The anterior nasal orifice was of much the same type as in the last specimen, and presented a sharp lower margin, and a distinct nasal spine.

No. 7.—This skull presented features which distinguished it clearly from all the others. In many respects it was obviously of a higher type, the sutures were tortuous, and the whole cranium large and well-filled. It was also brachycephalic. The face was orthognathous, and the lower margin of the nasal orifice was sharp and distinct, and there was a well-formed nasal spine. Another of the distinctive features of the skull was a marked asymmetry, due to a distinct flattening of the right parieto-occipital region. This flattening extended well down to the base of the skull and was of the same character as the distortion found among the crania of several races of New Guinea, which is generally ascribed to an artificial pressure applied to the head during youth.

A deformity of the same kind is described by Barnard Davies[1] in a skull from New Caledonia, but the deformity, he states, is most likely accidental, from laying the head to sleep in early life upon the ground. M. Bourgarel is satisfied that the natives do not use any apparatus to produce distortion of the skull.

Turner however[2] states that there is a widespread custom of distortion of the skull among the different tribes of New Guinea, *i.e.*, Papuans, and the same custom is prevalent in other localities also.

No. 8.—The last cranium of the series examined was that of a young female of New Caledonia, which was presented by Dr. Ramsay Smith in 1903, and was labelled "Tribe de Kanala." It was rather small, and in general contour was long and narrow, but had distinct parietal eminences, while the occipital region was narrow and pointed resembling No. 1, and some of the other specimens. The face was small and obviously not fully developed, and hence it is not of much value for racial characters.

CRANIOMETRIC OBSERVATIONS.

The crania were measured and the various indices were determined according to the scheme laid down by Sir Wm. Turner, and the cubic capacities were taken by filling the cranial cavity with shot, also according to Turner's method, with the following results. (Table A.)

ANALYSIS AND COMPARISON OF THE INDICES AND MEASUREMENTS.

Cubic capacities.—Five of the eight crania were microcephalic in character, the cubic capacities ranging from 1,180 c.cs. to 1,290 c.cs., but as this group includes two young specimens, only three of the eight adults were microcephalic. Two of the crania were mesocephalic with capacities of 1,380 c.cs. to 1,425 c.cs. while one only was of a relatively large capacity, and came into the group known as megacephalic, having a capacity of 1,500 c.cs.

The skull of lowest capacity, No. 1, is that of an adult, and the next lowest, No. 4, is also adult, and both possess male characters, and they do not appear to be merely small specimens of crania of the same race as those with higher capacities but are distinct from them in capacity and also in other characters.

The cranial capacity showed no relationship to the cephalic or to the altitudinal index, for the cranial index of the most capacious skull was 67, while that of the one next to it was 77, and the index of the skull of least capacity was 71.

Nor was there any other single feature which could be closely correlated to the cranial capacity, except the character of the anterior nasal aperture. Without exception, among the adult crania, those which had a well marked lower margin for the nose were of higher capacity than those in which there was no sharp margin.

[1] *Thesaurus Craniorum*, p. 308.
[2] *Challenger Reports, Zoology*, vol. 10, part 29.

TABLE A.

Group XXVIII. L. 1

Collection number	1	2	3	4	5	6	7	8
Age	Adult.	About 16.	Adult.	Adult.	Adult.	Adult.	Adult.	Young.
Sex	Male.	Male.	Female.	Male.	Male.	Female.	Female.	Female.
Cubic capacity	1180	1380	1260	1190	1500	1290	1425	1185
Glabello-occipital length ...	183	179	180	175	193	184	176	171
Basi-bregmatic height ...	133	128	132	132·5	143	135	135	124
Vertical Index	**72**	**71**	**73**	**75**	**74**	**73**	**76**	**72**
Minimum frontal diameter ...	91	92	90	90	90	89	92	82
Stephanic diameter	96	105	103	105	104	102	108	98
Asterionic diameter	103·5	103	108	101	107	106	106	96
Greatest parieto-squamous breadth	130	130·5	122	126	130	129	136	121
Cephalic Index	**71**	**73**	**67**	**72**	**67**	**70**	**77**	**70**
Horizontal circumference ...	498	489	497	480	525	500	484	467
Frontal longitudinal arc ...	125	121	126	118	131	120	122	120
Parietal " " ...	135	122	127	130	147	136	128	130
Occipital " " ...	114	129	116	110	128	127	112	105
Total " " ...	374	372	369	358	406	383	362	355
Vertical transverse arc ...	302	292	301	305	325	302	303	286
Basal transverse diameter ...	112	109	107·5	115	112	113	120	95
Vertical transverse circumference.	414	401	408·5	420	437	415	423	381
Length of foramen magnum	31·5	35	33	33	37	32	32	33
Basi-nasal length	96	88·5	95	99	99	98	100	88
Basi-alveolar length	99	93	100+	108·5	111	112	98	91
Gnathic Index	**103+**	**105**	**105**	**109**	**112**	**114**	**98**	**103**
Total longitudinal circumference.	501·5	495·5	497	480	542	513	494	476
Interzygomatic breadth ...	126	114	122·5	134·5	—	124	130	103
Intermalar " ...	102	96	107	118	108	108	117	80
Nasio-mental length	96·5	91	105	99	—	—	—	—
Nasio-mental complete facial Index.	**76**	**80**	**86**	**73**	—	—	—	—
Nasio-alveolar length ...	61·5	54	57+	58	70	68	64	56
Maxillo-facial Index... ...	**48**	**47**	**46**	**43**	—	**54**	**49**	**54**
Nasal height	41	40	45	40·5	48	47	52	40
Nasal width	25	24·5	22·5	28	24	24	25	22
Nasal Index	**61**	**61**	**50**	**69**	**50**	**51**	**48**	**55**
Orbital width...	35	36	37·5	37	40	38	41	36
Orbital height...	29	29	33	29	37	34	34	31
Orbital Index	**82**	**80**	**88**	**78**	**92**	**89**	**82**	**86**
Palato-maxillary length ...	53	48	53+	58	62	61	50	48
Palato-maxillary breadth ...	61	61	62·5	65	60	65	63	55
Palato-maxillary Index ...	**115**	**126**	**118**	**112**	**97**	**106**	**125**	**114**
Lower jaw. Symphysial height ...	30·5	24	29	30	—	—	—	—
Lower jaw. Coronoid " ...	61	51	61	58	—	—	—	—
Lower jaw. Condyloid " ...	58	50	64	65	—	—	—	—
Lower jaw. Gonio-symphysial length	93	78	91	97	—	—	—	—
Lower jaw. Inter-gonial width ...	83	78	91	93	—	—	—	—
Lower jaw. Breadth of ascending ramus.	35	35	36	45	—	—	—	—

Cephalic Index.—With the exception of one specimen, all the crania were dolichocephalic in character, the index varying from 67, which is the index in two specimens, to 73 which is the index in one, a young specimen. The one exception had an index of 77, and is therefore mesaticephalic, and this cranium differs in many other respects from all the others.

No distinction could be drawn as regards cephalic index between the crania from the eastern and those from the western part of the island; and in this respect the specimens do not confirm the statement of MM. de Quatrefages and Hamy,[1] that the tribes in the west are more dolichocephalic than those in the eastern portion.

Vertical Index.—The vertical indices ranged from 71 to 76.

The highest index was found in the specimen which was mesaticephalic, and which showed the parieto-occipital flattening to a marked degree. It is of course possible that this deformity has reduced the maximum length and produced an alteration in other directions and thus diminished the value of these indices.

The relationship of the basi-bregmatic height to the maximum width is a character of some value in dealing with crania from this region. In four specimens from New Caledonia, Barnard Davies[2] found that the average height exceeded the width by over half an inch, while in a large series of "Kanakas" which he examined the width exceeded the height, in many cases by as much as an inch.

Turner's researches on crania from the Pacific islands show that in the Melanesians the height of the skull exceeds the width, while in Polynesians the width is greater than the height. In twelve specimens in the Royal College of Surgeons' Museum from New Caledonia, or from the adjacent Isles of Pines, in no case does the width exceed the height; in one instance these two diameters are equal, but in all the other specimens the height exceeds the width very considerably.

In the present series, omitting the immature specimens, in all the specimens except one the same result is found, the one exceptional case being the brachycephalic specimen.

This fact lends additional evidence to the belief that it is a cranium racially different from the others.

Anterior Nasal Orifice.—The characters of the apertura pyriformis are of considerable interest in this series, since it is known to present special features among Polynesian crania.

The anterior aperture may be studied in two ways, first by measurement of its greatest vertical and transverse diameters, and comparing these, and again by an inspection of the character of the lower margin of the orifice.

The first method shows that the crania vary considerably in the shape of the nasal aperture. The index ranged from 48 to 69, the lowest index being found in the brachycephalic skull, which therefore, in this respect also, is different from the other specimens.

[1] *Crania Ethnica.*

[2] *Thesaurus Craniorum*, p. 308.

Three other specimens, Nos. 3, 5, and 6 resemble it to some extent with a slightly higher nasal index. These four specimens therefore belong to the group of mesorhine skulls, while the others have nasal indices varying from 55 to 69, and are in the platyrhine group.

Form of the Anterior Nasal Orifice.—Hovorka,[1] who has studied the form of the nasal aperture in great detail, points out that the lower margin of the nose, formed by the maxilla, is variable in its characters. It is often sharp and distinct, as is usual in European crania, but in other forms shallow fossae may appear on this margin, known as the prenasal fossae.

These fossae were first described by Zuckerkandl, in his description of the skulls from the Novara expedition, and their formation depends upon the fact that the lower border of the nasal orifice may be laid down in the form of two ridges, the posterior of which is a ridge running outwards and backwards on the floor of the nose, to lose itself in the nasal process of the maxilla, while the anterior passes to the facial aspect of that bone. Zuckerkandl found the prenasal fossae to be present in flatnosed people, and found them to be usually associated with prognathism, while Hamy found the lower margin sharp in orthognathous crania, but rounded in the gorilla and the chimpanzee.

Hovorka recognises four forms.—(1) The lower margin is sharp, known as the "forma anthropina." (2) The lower margin is in two lines which meet at the nasal spine and enclose between them on each side a distinct fossa, the "forma prenasalis." (3) The posterior line from the nasal spine passes to the side wall of the nose, while the lateral margin of the nose passes on to the facial aspect of the maxilla, the "forma infantilis." (4) The lower margin is rounded and indistinct, the "affenrinne." All these four varieties are present in the present collection, but the general tendency is towards the formation of the fossae. The various forms have also been described by Macalister,[2] who applies the term "oxycraspedote" to the European type, with a sharp lower margin, and that of "bothrocraspedote" to the form where there are distinct fossae, as is usually the case in the Polynesians. The third form met with frequently among Australian skulls is termed by him the "orygmocraspedote," and in it the lower edge of the lateral lip is prolonged on to the facial aspect of the maxilla and is lost in the elevation over the socket of the lateral incisor tooth.

Orbital Indices.—The relation of the height to the width of the orbits varied considerably among the specimens. Two were megaseme, three mesoseme, and the remainder were microseme.

The two presenting the high orbital openings were also distinguished by other characters, especially by their prognathism, from the others.

Gnathic Indices.—One cranium only, the brachycephalic one, was mesognathous in character, the rest being prognathous. This single specimen was almost orthognathous, with an index of 98, while the indices in the others ranged from 103 to 114. The prognathism was of the alveolar form.

[1] *Hovorka, Die aussere Nase.* [2] *Journal of Anat. and Phys.*, vol. 32.

CLASSIFICATION OF THE CRANIA.

From the foregoing detailed account of the characters and the measurements of the crania, it is evident that they do not all belong to one homogeneous racial group, in fact the individual crania differ from one another in practically every feature of importance. This fact, however, is not unexpected, since the population of the Pacific Islands consists of different races exhibiting different cranial characters, and with the improved means of communication now available, intermingling of these races may occur.

It is, however, clear that one of the specimens possesses characters differing in nearly every detail from all the others, and it appears to be an almost typical specimen of the Polynesian form of skull.

It is mesocephalic in capacity, and it is also mesaticephalic in its length-breadth index. The vertical index makes it almost metriocephalic, and the width exceeds the height. It is almost orthognathous and leptorhine. Comparison of its dimensions with the figures of other observers for Polynesian crania bring out its affinities. I have for this purpose selected some figures given by Duckworth[1] and the comparison is given below.

TABLE B.

	Skull No. 7.	Average of Polynesian Crania, Flower & Topinard.	Duckworth's Polynesian.
Breadth index	77	79·7	80
Height "	76	75·5	77·5
Alveolar "	98	98·6	98·1
Orbital "	82	91·6	84·5
Nasal "	48	47·9	46·7 ?
Palato-maxillary index ...	125	?	109·8
Cubic capacity	1425	1525	1552

From the close resemblance of the two sets of figures it is clear that the cranium is that of a Polynesian.

Omitting the immature specimens, the other crania approximate generally to the type described by Barnard Davies, and also by Flower and Topinard, as being characteristic of the inhabitants of New Caledonia. In them the skulls are

[1] *Studies in Anthropology.*

dolichocephalic, the height exceeds the width, and the general contour of the cranium is that of a high narrow arch.

Three of the specimens 1, 3 and 4, are fairly typical Melanesian crania, as is shown by the table below.

TABLE C.

	No. 1.	No. 3.	No. 4.	Average of Melanesian Crania, Flower & Topinard.	Average of Barnard Davies, New Caledonia.
Breadth index...	71	67	72	71·4	72
Height „ ...	72	73	75	74·9	77
Alveolar „ ...	103	105	109	103·4	
Orbital „ ...	82	88	78	80·6	
Nasal „ ...	61	50	69	55·6	
Palato-maxillary index.	115	118	112	?	
Cubic capacity...	1180	1260	1190	1460	

Two of the specimens, 5 and 6, are distinguished from the remainder by the high degree of prognathism which they present, and which is an unusual feature among the Melanesians.

Another of this group, No. 4, possesses very wide zygomata, and this feature lowers its facial indices, and suggests the possibility of the presence of a Mongolian strain.

It is evident, therefore, that among the crania which come from New Caledonia specimens can be recognised which conform closely to the type described by Flower and by Barnard Davies as characteristic of the Islanders, the principal feature of this type being the long, narrow, and highly vaulted cranium.

But crania are also found which evidently have belonged to persons of different races, especially Polynesian, and the population of the island also contains individuals with mixed characters.

The examination of those crania supports the following views :—

1. There is a distinct New Caledonia type of skull.
2. Polynesian, and possibly Mongolian, intermixture is present among the population.
3. A high degree of prognathism is present in some cases, which cannot be readily explained.

The two crania in which it is present resemble one another very closely in almost every respect, and they can be distinguished at a glance from the other specimens. This suggests the introduction of a foreign element.

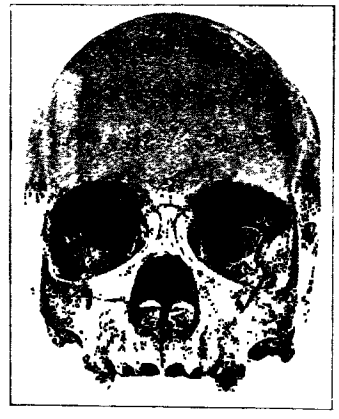

FIG. 9.—SKULL NO. 8. YOUNG ♀, MELANESIAN IN GENERAL CHARACTER.

FIGURES.

PLATE VI.

Fig. 1.—Adult male, No. 1, of Melanesian type.

Fig. 2.—Adult male, No. 1, of Melanesian type, lateral view.

Fig. 3.—Immature specimen, No. 2, showing mixed features; notice especially the short wide nasal aperture.

Fig. 4.—Adult female, No. 3, Melanesian type.

PLATE VII.

Fig. 5.—Adult female, No. 4, Melanesian type of cranium, with mixed (Mongolian ?) facial characters.

Fig. 6.—Adult male, No. 5, with mixed characters; notice sharp lower margin of nose.

Fig. 7.—Adult female, No. 6, similar to above.

Fig. 8.—Adult male, No. 7, Polynesian type.

TEXT.

Fig. 9.—Young female skull, "tribe de Kanala," No. 8, Melanesian in general character.

FIG. 1.—SKULL NO. 1. ♂.
MELANESIAN TYPE.

FIG. 2.—SKULL NO. 1. ♂. NORMA LATERALIS.

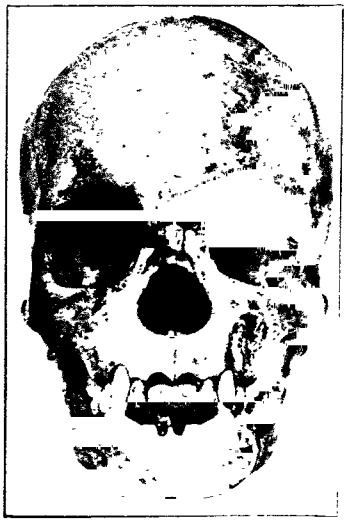

FIG. 3.—SKULL NO. 2. ♂.
IMMATURE, SHOWING MIXED CHARACTERS.

FIG. 4.—SKULL NO. 3. ♀.
MELANESIAN TYPE.

SKULLS FROM NEW CALEDONIA.

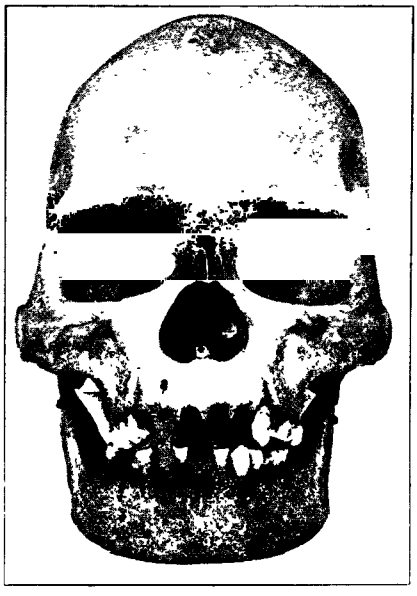

FIG. 5.—SKULL NO. 4. ♂.
MELANESIAN TYPE, WITH MIXED (MONGOLIAN ?) FACIAL CHARACTERS.

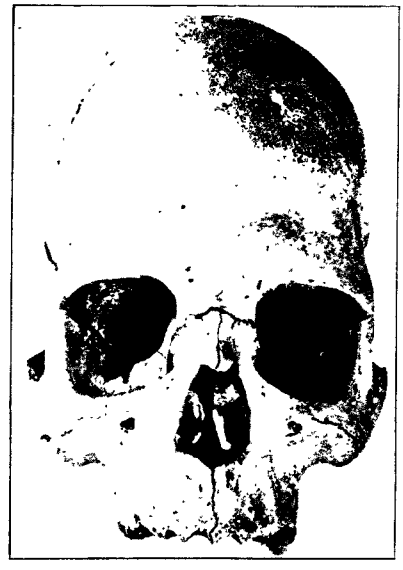

FIG. 6.—SKULL NO. 5. ♂.
SHOWING MIXED RACIAL CHARACTERS.

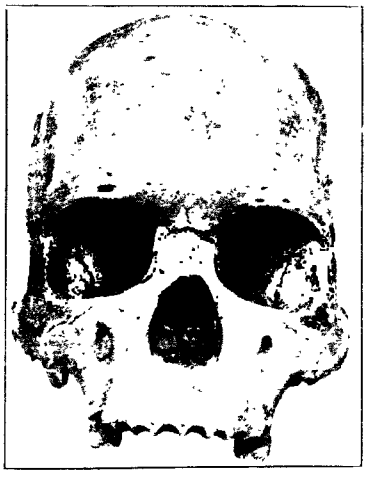

FIG. 7.—SKULL NO. 6. ♀.
RESEMBLES FIG. 6 IN MANY RESPECTS.

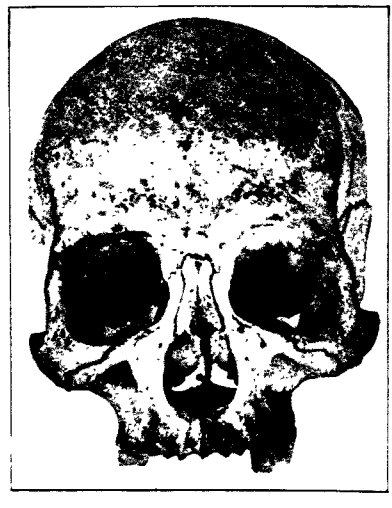

FIG. 8.—SKULL NO. 7. ♂.
POLYNESIAN TYPE.

SKULLS FROM NEW CALEDONIA.

MOCASSINS AND THEIR QUILL WORK.

By H. Ling Roth.

[With Plate VIII.]

When we first compare the footgear of the North-American Indians, known as mocassins, with that worn by the better-to-do Europeans at the end of the Middle Ages we are, I think, most of us inclined to believe that mocassins were introduced into America by Europeans. But such a belief is quite wrong. Although the first mention of the word mocassin, written *Mawhcassuns,* was made so late as 1612, by Wm. Strachey (Hakluyt Soc., vol. vi, 1849, p. 194), there is ample evidence as to the existence of the article quite contemporary with the advent of Europeans. So far back as 1527–1536, Nunez in the account of his retreat across Florida and the Mississippi to the west coast of Mexico, refers on several occasions to the footgear of the natives with whom he came into contact—natives who were then making the acquaintance of their destroyers for the first time, and to whom articles of European manufacture had not yet filtered down. There are also numerous references to, and descriptions of, mocassins in the Jesuit Relations.

The characteristic of the mocassin lies in the fact that the sole and upper are made in one piece of the same quality of prepared skin, which, at the present day, we often call buckskin, chamois leather or wash-leather. But as changes were, no doubt, from time immemorial in progress amongst the North-American Indians as elsewhere, we find that, while some tribes continued to use what we may call the primitive article, others adopted an improved form which was provided with a sole made of green hide. This transition has been going on even in modern times, for the old members of the Blackfoot Indians have quite recently told Clark Wissler that mocassins were formerly made without soles, and of a single piece of skin, with the seam at the heel, but for a long time they have used soles of raw-hide with soft tanned skin for uppers (*Annual Arch. Report for* 1905, Toronto, 1906, p. 166). Perhaps further light could be thrown on the transition by enquiry amongst Indians, who use the more modern form of mocassin, and who are unaware of any change, as to whether in their ceremonial observances the earlier or later form is worn.

Long ago Catlin pointed out that there was a prevailing and striking similarity of costume amongst most of the North-Western tribes. He could not say that the dress of the Mandans was decidedly distinct from that of the Crows or the Blackfoot, the Assiniboines or the Sioux; yet there were modes of stitching or embroidering in every tribe which might at once enable the traveller, who was

familiar with their modes, to detect or distinguish the dress of any tribe. These differences consisted, he said, generally in the fashions of constructing the head-dress, or of garnishing their dresses with porcupine quills, which they used in great profusion (p. 100). Elsewhere he remarked that a Crow was known wherever he was met by his beautiful white dress! The skins used by the Blackfoot were chiefly dressed black, or of a dark brown colour; from which circumstance, in all probability, they, having black leggings or mocassins, have got the name of Blackfoot (pp. 45, 46)! He said nothing as to the distinguishing marks of the mocassins. All the same we have only to glance cursorily at any collection of mocassins to see at once how widely they differ, and to conclude correctly that the Indians themselves must, except in the case of remote living tribes, have been able to distinguish between the different sorts worn by their neighbours. Henry relates (i, p. 435) that when his friends were on the trail of some Sioux (who had stolen horses) at a

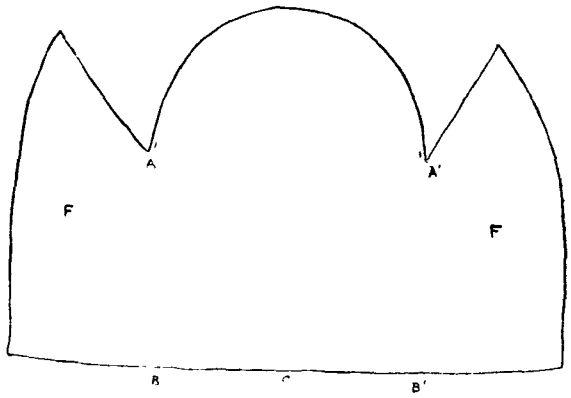

FIG. 1.—PATTERN OF A KICKAPU MOCASSIN.
The central portion, with the heel at C, forms the sole. It folds over so that B is joined to B' forming an inverted ⊥ seam at C; A is joined to A' and the rounded portion drawn over the toes. F F are the flaps or ankle pieces. Bankfield Mus.

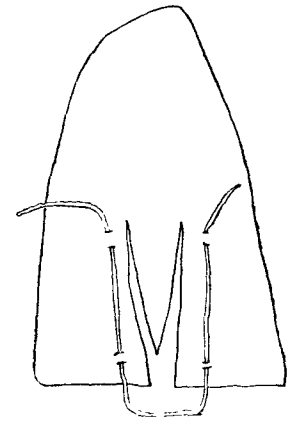

FIG. 2.—PATTERN OF A SHOSHONE UPPER. BANKFIELD MUS.

deserted camp, they discovered upwards of a hundred pair of old shoes, and on examining the tracks made from the different forms of shoes were able to conclude that three different tribes made up the party, viz.: the Yankton, the Gens des Feuilles, and some other. Out of bravado, too, a retreating raiding party would leave an arrow or a mocassin in a conspicuous position to let the despoiled ones know who had robbed them.

But we have no need practically to go back to the old travellers in search of the distinctive marks—these old travellers do not give them in any case—for the distinctions hold good at the present day. There is (1) the general outline of the piece of leather which makes up the mocassin; (2) the form of the sole, whether in one piece with the upper, or a separate greenhide sole; (3) the ankle flaps; (4) the seams; (5) the tongue; (6) the strings; (7) the ornamentation[1] or colouring. A few examples will suffice, viz.:—

[1] See "Decorative Art of the Sioux Indians," by Clark Wissler, *Bull. Am. Mus. Nat. Hist.*, xviii, 1904.

A *Kickapu* mocassin, made of one piece of skin; sole broad, rounded at the toes with slight indication of position of big toe; flaps cut straight at the back and not joined together, pointed in front; sewn at the heel, inverted ⊥ seam from root of toe nail and along centre of instep upwards; no tongue; strings start from the opening in front and are otherwise quite loose; bud and petal ornamentation over instep.

A *Shoshone* mocassin made with greenhide sole; sole somewhat narrow; flaps rising obliquely above the ankle and sewn together; uppers joined at the back; long triangular tongue ending in a point; loose strings slipped through at four places—two openings on each side of the foot; beadwork ornamentation on the instep in the form of a man standing with arms outstretched and legs apart, and a post on each side of him.

An *Apache* mocassin, upper made in two pieces—the upper proper sewn at back and wedge-shaped tongue in reversed position to that of the Shoshone tongue; separate sole, very pointed, with point of large toe barely rounded, the strings follow the opening for the insertion of the foot and pass through the tongue to hold it up; each right half coloured a light orange, with dark red cross below the little toe and a narrow band, also dark red, following the seam down the front: each left piece daubed with light ochre and a dark red cross below the little toe; a dark red band follows the seam between the sole and the upper all the way round. There is also a fringe sewn down the centre, between the two halves of the uppers, formed of a band of leather slit into strips, round the ends of which pieces of tin have been hammered

In the small collection at my disposal at Bankfield Museum, Halifax, it is not possible to say for certain that the distinctions described are all characteristic, but they tend to show that the distinctions are very marked. In so far as I know, no list has yet been compiled of the distinctive character of the footgear of the tribes of North America, and it is not possible to do this in England. It may not be out of place to mention here that in the United States there are evidently factories where mocassins are turned out by machinery, and I have had such articles sent to me from America, and have been told they were really made by Indians—but the Indians who made them must have been factory hands!

The care of a traveller's mocassins was a marked feature of Indian hospitality. Bradbury, always on good terms with Indians, tells us (*Early Western Travels*, p. 179) that the squaw in some instances examined his dress and in particular his *mockasons*; if any repair was wanting she brought a small leather bag, in which she kept her awls and split sinew and put it to rights. This care of a visitor's mocassins was, however, a native custom extended to Europeans. Tanner (*Trav.*, Lond., 1830, p. 89) refers to the case of an Indian who had got lost and to whom the Crees, amongst whom he fell, gave a new buffalo robe and a handsome pair of mocassins, "an example of hospitality much practised by Indians who have not had much intercourse with the whites." Tanner was to all intents and purposes an Indian, and he remarks elsewhere (p. 90) that his own family were once thus treated by

the Crees, "the principal wife of the chief examining our mocassins and gave each a new pair." It was, in fact, the women's duty to dress the leather, "make and mend the shoes of the whole family, dry the men's shoes and rub them quite soft before they present them to their husbands in the morning" (Masson's *Recits de Voy. Nipigon Indians*, p. 257). It is also mentioned by one of the Jesuit Fathers that on the hunter's return his wife takes his leggings and shoes, wrings them out if they are wet and puts them to dry (xi, p. 211).

According to the Jesuit Fathers, in summer on the soft ground of the plains the Indians went without mocassins, but in rough country, as we might have expected, the wearing of mocassins was a necessity, and their absence was a sign of distress. Lewis and Clark's party mention the anxiety of some of their Indian companions who, referring to the tracks of two barefooted Indians, considered such barefootedness a proof that those who made the marks must have suffered very severely (iii, p. 161). From the knowledge of the suffering caused by the absence of mocassins, coupled with the well known desire of proving their valour, arose the heroic custom, mentioned by Bradbury (*Early Western Travels*, p. 65), of a noted Osage warrior, not being a chief, who on leading a war party had, amongst other restrictions, to travel "without mockasons or even leggings."

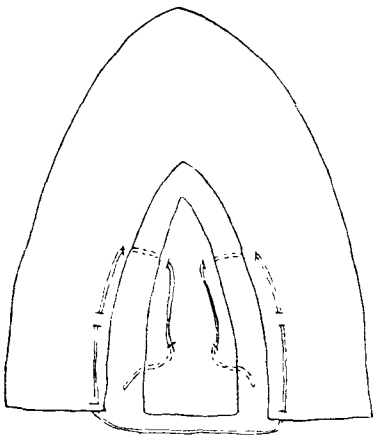

FIG. 3.—PATTERN OF APACHE UPPER AND TONGUE. BANKFIELD MUS.

Regarding the comfort or discomfort in the use of mocassins, according to European ideas, I have not been able to gather much information, but no doubt owing to the Indian having been brought up to their use from infancy they were a comfortable footgear until an improved article was discovered. Catlin tells us on one occasion, "on this march we were all travelling in mocassins, which being made without any soles, according to the Indian custom, had but little support for the foot underneath and consequently soon subjected us to excruciating pain, whilst walking according to the civilised mode with the toes turned out" (p. 219). On the other hand Long, speaking of the Omahaws, says: "In stepping the feet are universally placed upon the ground in a parallel manner with each other; they say that turning out the toes in walking, as well as turning them inward is a very disadvantageous mode of progression in high grass or in narrow pathways" (xv, p. 71) Both these authorities agree as to the position of the toes adopted by the Indians when walking; and the want of support caused by the absence of a hard sole can be appreciated. Perhaps some of the numerous American field ethnologists can add further particulars regarding walking in mocassins.

Long (*Western Trav.*, xv, pp. 66, 67) says, that when on a march the mourners would walk barefoot in testimony of their mourning. But this discarding of the mocassin had ultimately a symbolical meaning. Before the Shoshones would

smoke the pipe of peace "they pulled off their mocassins, a custom," Lewis and Clark afterwards learnt, "which indicates the sacred sincerity of their profession when they smoke with a stranger, and which imprecates on themselves the misery of going barefoot for ever if they are faithless to their words, a penalty by no means light to those who rove over the thorny plains of their country" (ii, p. 52).

It was no doubt a kindred feeling which induced them to put mocassins on to the dying, a custom which the Jesuit Fathers noticed early in the seventeenth century but were unable to explain (xi, p. 251). At an Omahaw funeral Long mentions the placing of a pair of mocassins with other articles which were to be used on the long journey, which the deceased was supposed to be about to perform (xv, p. 6, and xvi, p. 123).

As mentioned above, the women have to prepare the skins; but they do not seem to have been in the habit of preparing the skins, required for mocassins, in a different way from that of skins required for other purposes except when the hair of the animal was to be kept on. Beyond, therefore, referring to the writings of those who have described skin dressing nothing more need be said on the subject here.[1]

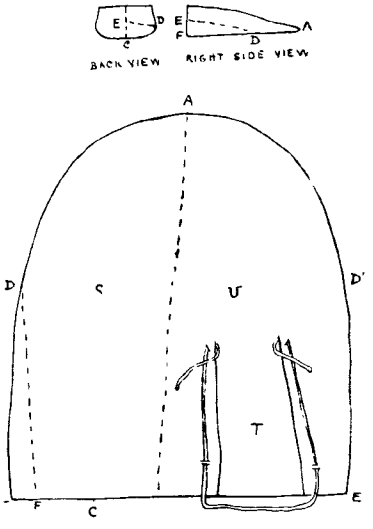

FIG. 4.—PATTERN OF A MOCASSIN MADE ALL IN ONE PIECE.

As shown, S is the underside of the sole, which is folded under at the dotted line A, until D touches D′ and the triangular portion DEF comes up on the right side of the foot, E being joined to E′; C is the centre of the heel, U is the upper and T the tongue. Bankfield Mus.

In their quill work the North Americans had, and a few of their survivors have still, a method of dress (and basket) ornamentation which is unique—not being found in any other part of the world. The quill work is at the same time pleasing and most artistic. The first mention of this work, which I have been able to trace, is by Champlaine, in his voyage to Canada, 1603, who relates that the women were adorned with "Matachia, which are paternosters and chaines interlaced, made of the hair of the Porkespicke, which they dye of various colours" (Purchas, xviii, p. 194). It is also mentioned by G. S. Theodat, a "Recollect" of St. Francis, who travelled amongst the Hurons in 1624 (*Le Grand Voy.*, Paris, 1632, reprinted Paris, 1865). He says the women "font aussi comme vne especе de gibesiere de cuir ou sac à petun, sur lesquels elles font des ouurages digne d'admiration, avec du poil de porc espic, coloré de rouge, noir, blanc et bleu, qui sont les couleurs quelles font si viues, que les notres

[1] R. W. Schufeldt, "The Navajo Tanner," *Proc. U.S. Nat. Mus*, ii, 1888, pp. 59–66, very complete; Alfred L. Kroeber, *Bull. Amer. Mus. Nat. Hist.*, xviii, 1902, pp. 26, 27; Catlin, pp. 45, 46; Long, xiv, pp. 312, 313; Henry, pp. 360, 382, 395; Hennepin (p. 191), and Schoolcraft, who gives an illustration of a dressing frame and of several of the leather dressing adzes used.

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ne semblent point en approcher" (p. 91); and again: "quelqu'vnes d'entrelles ont aussi des ceintures et autres parures faictes de poil de porc espic, teincts en rouge cramoisy, et puis fort proprement tissuës" (p. 134). Father Hennepin, who was in 1680 on the Mississippi, where the natives use wooden canoes and not bark canoes, refers to a chief who had some relative's bones carefully wrapped up in skins ornamented with several red and white bands of porc epic (p. 332). There does not seem to be much recorded as to the use of porcupine quills for purposes other than the special form of decoration under notice, although Fraser, writing in 1805 (Masson's *Recits*, i, p. 350), says the Corbeaux Indians substitute porcupine tails for

FIG. 5.—POUCH FOR HOLDING QUILLS MADE OF BISON INTESTINE.
M. A. Owen Collection, University Mus., Cambridge.

combs, and Lewis and Clark say of the Teton Okandandas, a Sioux tribe, that they wore loose robes of buffalo skin dressed white and adorned with porcupine quills loosely fixed so as to make a jingling noise when in motion (i, p. 139).

In so far as I am aware no one has yet published any description of the method in which the quill is applied as a decoration to mocassins or any other portion of the wash-leather dress of the North-American Indian. Long boasts of what he learnt to do among the Indians "as regular as the natives." He adds, "I also made makissins, or Indian shoes, of deer skins, drest and smoked to make the leather soft and pliable, and worked with porcupine quills and small beads, etc." (*Voy. and Trav.*, London, 1791, pp. 71, 72), but like every other writer he leaves us to find out how the quills were applied.

The only quills which appear to be used are the short ones taken from the tail of the Canada porcupine (*Erethizon dorsatus*), averaging in length about 65 mm. (2½ in.). They are used without any preparation except that of dyeing and flattening. Kroeber, speaking of the Arapaho, says the quills were softened in the mouth and flattened with a bone (*op. cit.* p. 28), Fig. 7.

FIG. 7.—ARAPAHO QUILL FLATTENER. After Kroeber.

As to the dyeing Alex. Mackenzie was informed that coal was used as a dye "with which the natives render their quills black" (p. 26), and Geo. Heriot (*Trav.*, Lond., 1807, p. 293), says that, apart from the colour extracted from the juice

of particular plants and berries, "they extract with considerable dexterity, the colour of European cloths, which they transfer to the leather and to the porcupine quills, with which they fabricate their little works."

In answer to some enquiries I addressed to Miss Mary Alicia Owen (author of the *Folk Lore of the Musquakie Indians*) regarding the provenance of the colours used, that lady very kindly sent me the information which follows: "Yellow is made from the bark of the hickory tree (*Carya alba*); the quills are soaked in an infusion made from boiling water and bark, and afterwards washed in a weak lye made from wood ashes, and then dried in the shade. Green is obtained from the boiled juice of wheat or common garden spinach. Purple and blue are obtained from the juice of the grape (*Vitis cordifolia*), which grows wild and has a villainously sour, almost black fruit, as small as a currant, with juice the colour of claret. Scarlet and orange are procured from onion skins. Crimson, pink and magenta, are the stains of the poke-berry (*Phytolacca decandra*). Once I saw an exquisite pink which I was told was made from the petals of the prairie rose (*Rosa setigera*), and on another occasion I saw a magnificent red which an old woman said was made from dog's blood and mussel shells; I begged to be allowed to see the process, but the old woman refused permission. Other colours are made from roots, leaves and bark, but the Musquakies as a rule care little for them and are losing the secret of preparing them. When the Indians have the opportunity of buying dyes from the traders they do so; when they have not this opportunity they produce their own dyes. Of late years there has been set up the fashion among some Indians of working the quills uncoloured into patterns on birch bark. The bark is coated till it is soft and the quills are stuck in after the holes are made with an awl. It is probable that the uncoloured quills are used in the wet bark because dyed ones might run and fade. It is most probable that the use of uncoloured quills is quite a modern one as all the Indians are very fond of bright colours, and it is the colouring of the quills which gives them their charm—without the colouring the quill work falls flat and becomes objectless."

The quills are sharp enough and strong enough to withstand being gently pressed into wash-leather without the aid of an awl to prepare the way. But, in so far as I can ascertain from the specimens of quill work which have come under my observation, in no case are the points of the quills used for fixing them on to the leather, although at a first examination one gets the impression that the quills are so fixed. This is no doubt partly due to the elasticity of the woolly-like surface of wash-leather whereby holes or threads are quickly covered up, and partly to the quills being placed intentionally very closely together. Perhaps the fact that sinew is used instead of thread may also help the misconception.

The details of the quill working which follow are taken from the four articles illustrated in Figs. 8–11 (Pl. VIII), viz., two mocassins said to come from Hudson's Bay, a knife sheath and a frontlet—all in Bankfield Museum, Halifax, Yorks.

In Fig. 12 I have reproduced one of the commonest quill patterns, made of all white quills, and have shown everything that can be seen of it either with the naked

eye or with a pocket lens. Felt with the finger, the pattern is found to sit tight on to the surface of the leather, and without opening it up one can but conclude

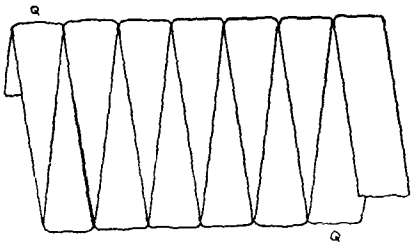

FIG. 12.—WHITE QUILL WORK ON MOCASSIN, FIG. 8.
Q = Quill.

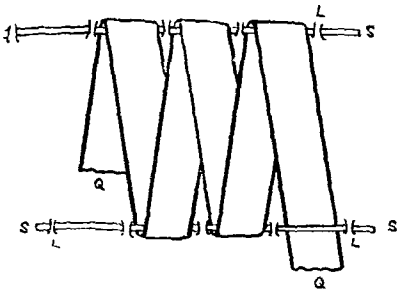

FIG. 13.—THE SAME AS FIG. 12, BUT SPREAD OUT TO SHOW HOW APPLIED.
L = Loop in surface of leather; S = Sinew; Q = Quill.

that the quills have been driven into the leather at their points. But such is not the case. In Fig. 13 I show what has been really done. A series of loops, L, have been made in the surface of the leather by means of the woman's awl, the thorn;

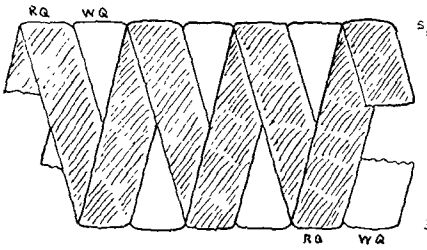

FIG. 14.—WHITE AND RED QUILL WORK ON A POUCH IN BANKFIELD MUS.
RQ = Red quill; WQ = White quill.

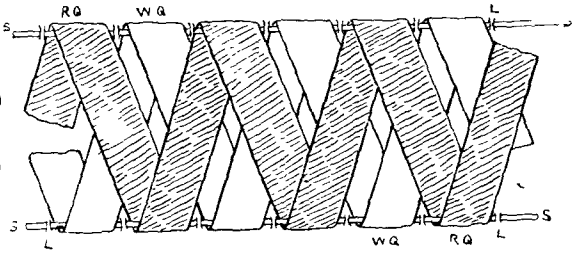

FIG. 15.—THE SAME AS FIG. 14, BUT SPREAD OUT TO SHOW HOW APPLIED.
L = Loop; S = Sinew; RQ = Red quill; WQ = White quill.

through these a piece of sinew has been drawn and then the flattened quill has been placed in position under and over the sinew as shown. Nothing could be simpler, yet the elasticity of the materials and the skill of the workwoman are so great that

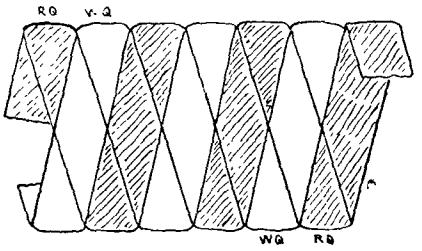

FIG. 16.—ANOTHER ARRANGEMENT OF WHITE AND RED QUILL WORK ON MOCASSIN, FIG. 8.

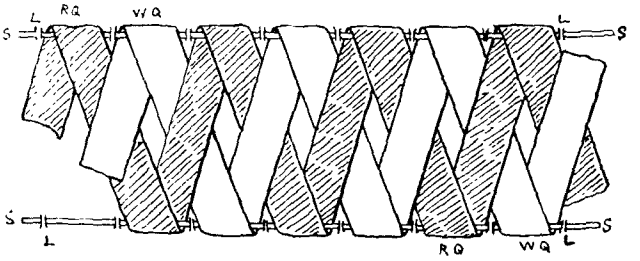

FIG. 17.—THE SAME AS FIG. 16, BUT SPREAD OUT TO SHOW METHOD OF APPLICATION.

they completely hide the method by which the result is achieved. In a similar way are produced the designs with two or more coloured sets of quills. Fig. 14 shows an arrangement in red and white, which arrangement is explained

by the diagram in Fig. 15. In Figs. 16 and 17 another arrangement is exhibited, together with its explanation.

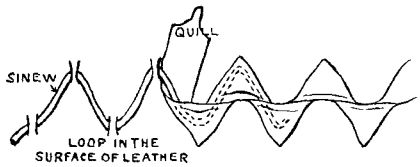

FIG. 18.—QUILL WORK BORDER ON MOCASSIN, FIG. 8.

A different style of ornamentation is shown in Fig. 18, being the outer border of Fig. 8. Here the sinew instead of being drawn through the loops in a straight line is made to run through an upper and lower loop alternately, and the quill is *twisted* round the sinew instead of being kept flat. Perhaps the quill is moistened to prevent breakage when it is being twisted.

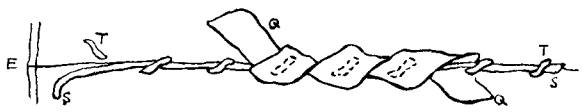

FIG. 19.—QUILL WORK APPLIED TO COVER A SEAM.
E = the two edges of leather placed together; S = the "cord" (of sinew), T = the thread of sinew which joins the two pieces of leather; Q = the quill.

A different method again is illustrated in Fig. 19. The quill decoration in this case is intended to cover the seam—seams appear to be always "corded," generally with sinew. There is another method of quill application used for decoration where there is no seam, such as is shown in Fig. 20; the difference being that where a seam is to be covered the quill is twisted round the "cord" sinew, Fig. 19, and where there is no seam the quill is squeezed lengthwise and sewn on. This is a less effective method, and, I am inclined to think, is of late introduction. It forms the general decoration on the knife sheath, Fig. 10, and is similar to that on the mocassin, Fig. 9. But the quill border on the knife sheath, while also stitched on, is done so in a different manner, the fastened down quill being bent alternately over to cover the stitch, Fig. 21.

FIG 20.—QUILL SQUEEZED LENGTHWISE AND SEWN ON MOCASSIN, FIG. 9, AND KNIFE SHEATH, FIG. 10.

FIG. 21.—QUILL BORDER ON EDGE OF KNIFE SHEATH, FIG. 10.

A very intricate piece of work is shown in Fig. 22, which illustrates the joint of the ankle flap with the uppers on the mocassin, Fig. 8. A band of leather (the "cord" of European sewing) is placed along the two edges of leather to be fastened together and the quill wrapped round this, but on the front or outside

edge the sewing thread (sinew) is made to run through each coil whereby the cord is secured to the joint. Here again the method is entirely hidden and it is only discoverable by carefully opening out the work. The result of the work is very effective.

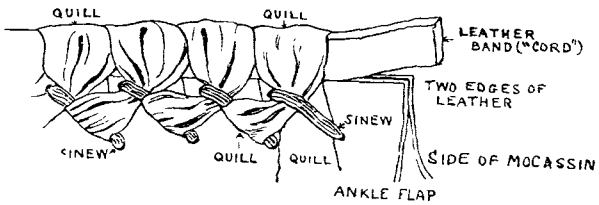

FIG. 22.—QUILL WORK APPLIED IN MOCASSIN, FIG. 8, TO COVER UP THE EDGES OF THE LEATHER OF THE MOCASSIN AND THE ANKLE FLAP.

Quite different in every respect from all the foregoing methods is the quill work shown and explained in Figs. 23 and 24, taken from the central flat band of ornamentation on the mocassin, Fig. 9, already mentioned. It is the same as that

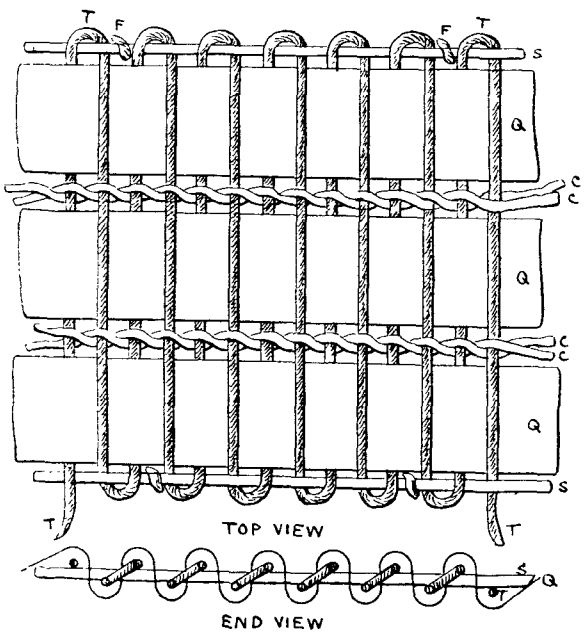

FIG. 23.—QUILL WORK FORMING THE ORNAMENTATION OF CENTRAL PIECE OVER INSTEP DOWN TO TOES OF MOCASSIN, FIG. 9, AND THE WHOLE OF THE ORNAMENTATION OF FRONTLET, FIG. 11.

T = Sinew used as thread to make the corrugations, S = Sinew at end of every third row of quills; C = Sinew to hold T in position; F = Stitches on to mocassin; Q = Quill.

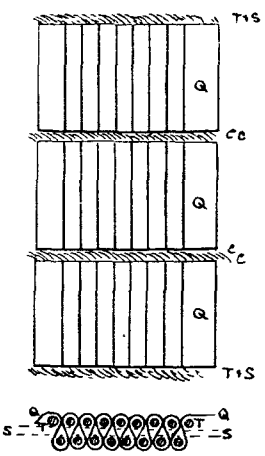

FIG. 24.—THE SAME AS FIG. 23, AS SEEN WHEN COMPLETED; WITH SECTION.

shown on the frontlet, Fig. 11. The quills are corrugated, Fig. 23, by means of tightly drawn sinew thread placed alternately over and under the quill, so that when the work is completed it gives the impression of being a set of narrow beads

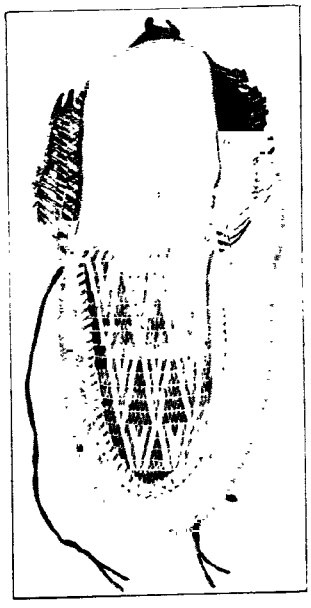

FIG. 8.—MOCASSIN FROM HUDSON'S BAY. BANKFIELD MUSEUM.

FIG. 9.—MOCASSIN FROM HUDSON'S BAY. BANKFIELD MUSEUM.

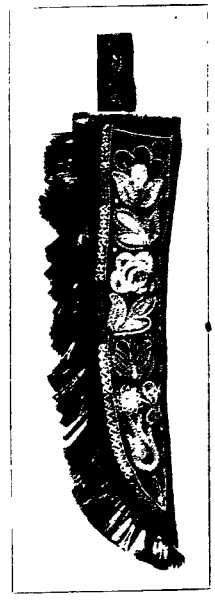

FIG. 10.—KNIFE-SHEATH FROM HUDSON'S BAY. BANKFIELD MUSEUM.

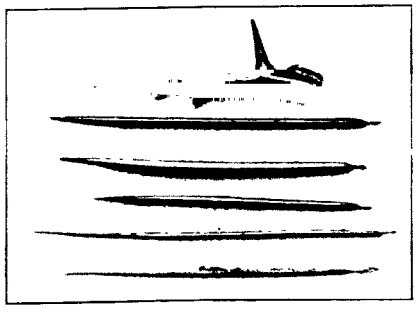

FIG. 6.—THORN AND QUILLS. UNIVERSITY MUSEUM, CAMBRIDGE.

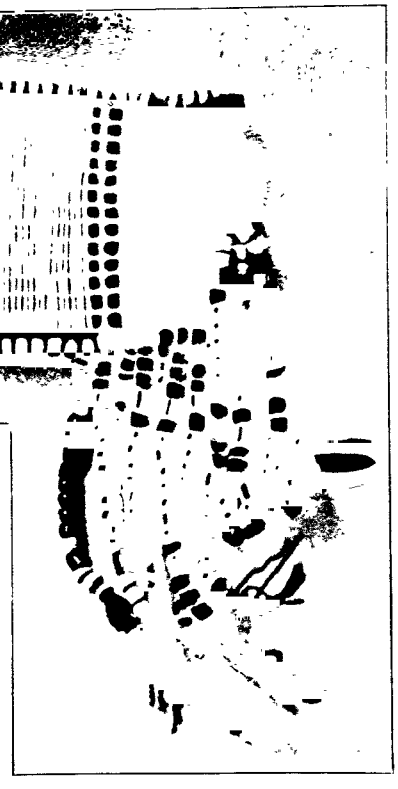

FIG. 11.—FRONTLET FROM HUDSON'S BAY. BANKFIELD MUSEUM.

MOCASSINS AND THEIR QUILL WORK.

closely threaded, Fig. 24. When completed the little piece of ornamentation is sewn on to the article to be decorated.

As mentioned above I fail to find from any of the specimens at my disposal that the quills are fixed into the leather by means of their sharp pointed ends. That the decorative use of quills on leather may have originated that way from basket work is quite possible. At the same time I think that the method of affixing the quills by means of direct sewing, as in Figs. 20 and 21, is a later development which may have originated with seed or bead work. The development of quill work decoration may perhaps be surmised to have been as follows:—

1. Applied to basket-work or mat-work where the quill ends are inserted into the interstices of the plaiting.
2. Applied to leather work by means of pressing the points into the material.
3. The adoption of the loop and sinew.
4. Twisting quills round stitches of sinew.
5. Twisted or squeezed up quills sewn on.

European ornamentation, apart from bead work, is not infrequently put on, such as silk braid, flannel ankle flaps, etc., etc.; in Bankfield Museum there is an old mocassin, which has been in the collection over fifty years, ornamented with silk *tambour* stitch pure and simple.

THE KANO CHRONICLE.

TRANSLATED, WITH AN INTRODUCTION, BY H. R. PALMER.

[WITH PLATES IX, X.]

INTRODUCTORY.

THE Hausa states, which form a large portion of the country now called Northern Nigeria, have been ruled since the beginning of the nineteenth century by Fulani,[1] who, under their chief Othman Dan Hodio, about the year 1807, ousted the former Hausa rulers on the plea of a religious revival. As it was known that Arabic literature and the Moslem faith had been introduced in the fifteenth century at latest, it was natural to suppose that some records had been kept of the reigns of the Hausa kings (Sarkis). Little, however, has hitherto come to light except for two MSS. which Dr. Barth discovered in Bornu dealing with that country, and the *Kano Chronicle*, of which there are several copies in existence, and which is mentioned by Lady Lugard (*Tropical Dependency*, p. 236). The copy, however, to which Lady Lugard alludes is not complete, since only forty-two kings are mentioned. The MS., which I have attempted to translate below, was found at Sabongari, near Katsina, and goes down to, and breaks off in, the time of Mohammed Belo, the forty-eighth king.

The MS. itself is of no great age, and must on internal evidence have been written during the latter part of the decade 1883–1893; but it probably represents some earlier record which has now perished. It is said, and no doubt with some truth, that the Fulani in their fanatical zeal, destroyed many old records and books, on the ground that they were the books of "Kafurai," for their *casus belli* was that the Hausa Sarkis were infidels, and as such deserved to be destroyed with all their works. The records on which the *Chronicle* must be based were apparently an exception. The authorship is unknown, and it is very difficult to make a guess. On the one hand the general style of the composition is quite unlike the usual "note" struck by the sons of Dan Hodio, Abdulahi and Mohammed Belo, and imitated by other Fulani writers. There is an almost complete absence of bias or partizanship. It is hardly possible that a Fulani mallam of the time of Dan Hodio, or even of the present time, could have related the expulsion of Mohamma Alwali, the last Hausa Sarki, without betraying his race. On the other hand the style of the Arabic is not at all like that usually found in the compositions of Hausa Mallams of the present day: there are not nearly enough "classical tags," so to speak, in it. A young Arab in the employ of the writer, who, though he can read and write *colloquial* Tripoli and Ghadamis Arabic, finds it difficult, and in fact impossible, to construe the Arabic books which are most commonly found in Hausaland, read and translated the MS. without difficulty. Kano was always

[1] The author considers Filane to be the correct spelling; the more generally accepted form is retained to avoid confusion.—ED.

visited by mallams from different parts of the Sahara and Barbary, and they often resided there for long periods. That the author of the work was thoroughly *au fait* with the Kano dialect of Hausa, is evident from several phrases used in the book, for instance باراعيبا used in a sense peculiar to Kano of "perforce." The original may perhaps have been written by some stranger from the north who settled in Kano, and collected the stories of former kings handed down by oral tradition.

The *Chronicle* has been translated as it stands, with the marginal notes of the text, in foot-notes. The names of the Sarkis (given in the margin by the author) are merely for convenience of reference. I have added approximate dates worked out by simply reckoning back from the length of reigns given, assuming the date of the Fulani entry into Kano as September of A.D. 1807 (A.H. 1222), which a careful comparison of various accounts has led me to believe is about the right date.

In themselves the lengths of the various reigns as given in the text would not carry much weight perhaps. There is, however, some confirmation in one or two cases which makes one inclined to believe in their substantial accuracy.

In a work attributed to Shehu Dan Hodio, he quotes Abdu Rahaman es Suyuti in a work on the Sudan called *Risalat ul Muluk* as writing a letter to various kings, among whom were Mohamma Ibn Matafa, Sarkin Agades, and Sarkin Ibrahim of Katsina. Suyuti died in 1505, and is known to have been acquainted with Abdu'l Magili Ben Marhili of Tuat. The latter is generally regarded as one of the first marabouts of importance who visited Hausaland, and is almost certainly the Abdu Rahaman or Karimi of the narrative, who visited Kano in the reign of Rimfa.

A tradition, quoted by Dr. Barter, and generally stated to be correct, makes Magili visit Katsina in the time of Ibrahim. There is also a general agreement that Ibrahim and Rimfa were contemporaries, and that Magili visited both Kano and Katsina.

Again, in the same work, Dan Hodio quotes a letter from Abdul Magili to "Abi Abdulahi Dan Umoru Mohamma," written in A.H. 897, A.D. 1492, in reply to a letter from "Dan Umoru," who must be Mohamma Rimfa, asking for an abridged edition of the *Mukhtassar* of Sidi Khalil.

The reckoning based on the length of reigns as given by the text makes Mohamma Rimfa reign A.H. 867–904 (A.D. 1463–1499), which exactly fits in with the facts mentioned above (*cf.* Cherbonneau, *Journal Asiatique*, Ser. v, vi, 391).

The *Chronicle* says that in the time of Yaji (A.D. 1349–1385) the Wongarawa (Mandingoes) came from Melle bringing with them the Moslem religion.

Now the great king of Melle, Mansa Musa, made his pilgrimage to Mecca in 1326, and in 1373 the Wazir Mari Jatah of Melle conquered Tekidda (near Asben). It would be extremely probable that about this date the rise of Mandingo power should make itself felt. There seems no reason why the introduction of Islam into Hausaland should not have taken place at the date ascribed to it in the text, though Lippert and other scholars seem to think that Magili was the first

Muhammadan missionary to reach Kano (*cf. Journal of the African Society*, July, 1905).

Again the *Bornu Chronicle* (as abridged by Barth, vol. ii, p. ii) makes Othman Kalnama take refuge in Kano in A.D. 1432. In Dauda's time (A.D. 1421-1438) a great Bornu prince called Dagachi (which simply means ruler or king) arrives in Kano and settles with a large following. The circumstances make it very probable that Dagachi is Othman Kalnama.

The various references in later reigns to Gobir, Zamfara, the Kworarafa, and Nupe are all chronologically correct approximately.

It seems therefore highly probable that, except for the very early kings, the *Chronicle* is roughly accurate.

The question of who the race were, who are described as conquering the primitive inhabitants of Kano, is somewhat difficult. On the other hand, the description of the Dalla stock seems to leave no doubt that they were full-blooded negroes. Assuming that the men of Dalla were of the tall negro type, an interesting comparison might be made between them and the people of the Hombori Hills whom M. Desplagnes calls "Habbe" in *Le Plateau Central Nigèrien.*

Roughly speaking, three very distinct influences have acted on the country which we call Hausaland—that is to say, the Emirates of Kano, Katsina, Zamfara, Gobir, Daura, Zaria, and the smaller states which were anciently called Unguru or Biram. These influences may be indicated briefly by the words Semitic, Hamitic, and Negro. The Semitic influences have been, at all events, within the later historic period, indirect.

The negro, on the other hand, divided by most ethnologists into short-legged pronounced prognathous, and tall slightly prognathous varieties, is necessarily the starting-point of any inquiry. It is upon these two types of negro that the various invaders from north and east—whom we may loosely term Hamitic—have acted and produced the mixture of races and ideas which characterize Hausaland. There is considerable evidence that the negro, at a not very distant time, extended much further north than at present, and that it is only within the last thousand years that he has been pushed so far south. Various guesses have been made at the composition of the invading peoples from the north, and the part they played in the prehistoric history of the Sudan. There are, no doubt, striking resemblances between the pre-dynastic customs of the inhabitants of Egypt and some modern Hausa customs: the shape of various agricultural implements is identical; "triads" of deities are common to both. As yet, however, the data are insufficient to warrant any very definite theory being held—and the truth, if it is ever discovered, can only be traced by working back from the historic and known to the unknown.

The often quoted story of Herodotus about the young Nasamonians, if true, means that in 500 B.C., the negro and negrito peoples were, as yet, not displaced from the Upper Niger The first historical kingdom of the West Sudan is that of Ghana—a Libyo-Berber civilisation which apparently flourished early in our era. M. Desplagnes recently excavated tombs or tumuli on the Niger

which seem to have been erected by these people, and are of construction similar to those described by El Bekri in his account of Ghana, and to others examined by the writer in the river valleys of Kano and Katsina.

It would appear, therefore, that from some date between 500 B.C. and A.D. 400, if not before, the inhabitants of Hausaland were subject to Libyo-Berber influences.

The next kingdom which comes into history is Bornu—according to Barth about the ninth century A.D.—situated at that time to the east of Lake Chad. Tribes coming from the east conquered the indigenous negroes. Native tradition says these tribes were Arabs and came from Yemen. The love of a Yemenite origin is a common failing of historians even more reliable than the Bornu Chronicler, but the more modern history of Darfur and Wadai shows that the story does not lack probability as regards the *race* of the invaders.

The countries between Ghana and Bornu are not mentioned by El Bekri or Edrisi—it is not until the time of Leo Africanus that Kano and Katsina were important enough to be known to the outside world.

But between A.D. 900 and A.D. 1513, the date of Leo's visit to the Sudan, certain peoples represented in the text by Bayajidda arrived at Daura and conquered the indigenous inhabitants of the Hausa States. The native tradition as to who they were, varies. The Fulani Sarkin, Muslimi Mohammed Bello, says (see *Denham and Chapperton*, ii, 399) that they were "slaves of the Sultan of Bornu." But this statement is made on the authority of Mohammed El Bakkri—a Kanuri! The well-known Daura legend, preserved in writing, says they came from Bagdad, and introduced the horse into Hausaland. Bayajidda, the ancestor of the Kings of Hausaland, mentioned in the footnote, p. 64, is represented as having arrived in Daura, slain a snake which inhabited a well, and married the Queen of Daura. He had previously escaped from the treachery of the Sultan of Bornu, who, having tampered successfully with the loyalty of his men, was plotting against his life—when he fled. This story would make Bagoda and his men Hamites. Other mallams maintain that the invading people were Teterre (Tatars). M. Desplagnes has a theory that Mongols formed an element in the tribes which overthrew Ghana about A.D. 1230. It is possible that a western migration of peoples of mixed origin accounts for the two stories, and that the same causes which presumably led to an advance in civilisation in Kano, degraded the Libyo-Berber civilisation of Ghana.

Vast ethnographical changes must have resulted from the rise of the Fatimids in North Africa about A.D. 900, and the disorders of A.D. 968, in Egypt, drove thousands of the mixed population into flight. Again the pressure of the Seljuks and other Turkmans about this time, may well have given rise to displacements of which we have here a far-off echo.

The only certain fact, however, is that about A.D. 1000 the Hausa States were occupied by an alien race coming from the east. This race or people ruled, though at different periods tributary to Songhay and Bornu, until displaced by the Fulani in 1807. It is they who are often called Habe, a word of which the

singular is Kādo. The name does as well as any other to express this people, but it by no means follows that the people of the Hombori region west of the Niger, called Habe by the Fulani, are connected with them—for the Fulani called any conquered negro people "Habe." For this reason it seems better to keep the word Hausa to express the post- A.D. 1000 and pre- A.D. 1807 inhabitants of Hausaland, provided that it is not used indiscriminately of any peoples who speak the "Hausa" language. In fact, Habe is a far wider word than Hausawa, and practically means any negro race. The primitive peoples of the Hombori and the Dalla stock of Kano may both be conveniently called "Habe.". The name in itself proves nothing.

Now the clans from the east which laid waste the kingdoms west of the Niger during the twelfth century were of the eponym "Serpent" (-Sâ) (Desplagnes, *Le Plateau Central Nigèrien*, p. 178 *sq.*) They become in various places, Susu, Sarrakole, Sauke, Sissoko, etc. We find that in 1346-1349 (*cf. Barth*, ii, 638) an early Sultan of Bornu fights the Sau or So (سو) "the original inhabitants of the greater part of the country between the Wau and Shari." The Kano Chronicler expressly states that the Emir Abdulahi Burja, who ruled about A.D. 1438, was the *first* Hausa Sarki to pay tribute to Bornu; while in 1421, as has been mentioned, a chief who very probably was Othman Kalnama, fled to Kano, when a revolt expelled him from Bornu.

We find therefore that when the Bornu princes began to extend their empire west of Tchad about 1346 they were opposed by a people called Sau, whom they had apparently been fighting for years: that a snake-killing hero is supposed to have founded the so-called "Hausa" dynasties: that about 1200 there was a great conquest by Sâ (Serpent Clans) west of the Niger; and finally that, after the Sultans of Bornu became paramount over Hausa about A.D. 1438, there is no more mention of So or Sau. The plural of Kādo is Habe; possibly the plural of Sâ or Sau is Hausa or Sausau? It is also curious that west of the Niger these Sousou or Serpent clans are represented as bringing the "horse" with them (Desplagnes, *op. cit.*, p. 483) as in the Daura legend. It may also be added that some form of serpent is the "totem" of nearly every non-Moslem Hausa community at the present day.

But whatever the origin of the invaders, they founded the Hausa "bokkoi" or seven Hausa states, and continued to rule all except Gobir, where the reigning families are said to be of Coptic origin. If we may trust the *Chronicle* the primitive Kano people had already advanced fairly well in arts and trades before the advent of the invaders. The conquerors' religion seems by implication to have been Muhammadan, and their chiefs are represented as suppressing pagan observances—a story which is difficult to believe; but in any case they soon lapsed into the same practices as their subjects, and the Wongarawa are later on credited with introducing Islam.

I can hardly hope that the rendering is entirely adequate—the general sense is seldom obscure, but the slipshod character of the writing often leaves minor points doubtful. I am indebted to Mr. C. L. Temple, Resident of Sokoto, Dr. D. Alexander, W.A.M.S., and Mr. W. Reid of Tripoli, for kind help in revising many parts of the translation.

THE KANO CHRONICLE.

In the name of God, the merciful, the compassionate.
May God bless the noble Prophet.

This is the history of the lords of this country called Kano. Barbushe, once its chief, was of the stock of Dalla,[1] a black man of great stature and might, a hunter, who slew elephants with his stick and carried them on his head about nine miles. Dalla was of unknown race, but came to this land, and built a house on Dalla hill. There he lived—he and his wives. He had seven children—four boys and three girls—of whom the eldest was Garagéje. This Garagéje was the grandfather of Buzame, who was the father of Barbushe. Barbushe succeeded his forefathers in the knowledge of the lore of Dalla, for he was skilled in the various pagan rites. By his wonders and sorceries and the power he gained over his brethren he became chief and lord over them. Among the lesser chiefs with him were Guñzago, whose house was at the foot of Gorondutse to the east. After him came Gagiwa, father of Rubu, who was so strong that he caught elephants with rope. There were also Gubanásu, Ibrahim, Bardóje, Nisau, Kanfatau, Doje, Janbére, Gamakúra, Safátaro, Hangógo, and Gartsangi. These were next to Barbushe in rank. Tsanburo lived at Jigiria, and Jandámisa at Magum. The last named was the progenitor of the Rumáwa. From Gogau to Salamta the people traced their descent from Rumá, and were called Rumáwa because they became a great people. Hambaro's house was at Tanagar. Gambarjado, who lived at Fanisau, was the son of Nisau. All these and many more there were—pagans. From Toda to Dan Bakóshi and from Doji to Dankwoi all the people flocked to Barbushe on the two nights of Idi—for he was all-powerful at the sacrificial rites.

Now the name of the place sacred to their god was Kakua.[2] The god's name was Tchunburburai. It was a tree called Shamuz. The man who remained near this tree day and night was called Mai-Tchunburburai. The tree was surrounded by a wall, and no man could come within it save Barbushe. Whoever else entered, he entered but to die. Barbushe never descended from Dalla except on the two days of Idi. When the days drew near, the people came in from east and west and south and north, men and women alike. Some brought a black dog, some a black fowl, others a black he-goat, when they met together on the day of Jajibere at the foot of Dalla hill at eve. When darkness came, Barbushe went forth from his house with his drummers. He cried aloud and said: "Great father of Jimuna, we have come nigh to thy dwelling in supplication, Tchuburburai," and the people said: "Look on Tchuburburai, ye men of Kano! Look toward Dalla." Then Barbushe descended, and the people went with him to the god. And when they drew near, they sacrificed that which they had brought with them. Barbushe

[1] The name of a rock and also a man.
[2] Otherwise called Kagua.

entered the sacred place—he alone—and said: "I am the heir of Dalla, like it or no, follow me ye must, perforce." And all the people said: "Dweller on the rock, Lord of Mamale, we follow thee perforce." Thus they spoke and marched round the sacred place till the dawn, when they arose, naked as they were, and ate. Then would Barbushe come forth and tell them of all that would befall through the coming year, even concerning the stranger who should come to this land, whether good or ill. And he foretold how their dominion should be wrested from them, and their tree be cast down and burnt, and how this mosque should be built. "A man shall come," said he, "to this land with an army, and gain the mastery over us. They answered, "Why do you say this? it is an evil saying." Barbushe held his peace. "In sooth," said he, "you will see him in the sacred place of Tchunburburai; if he comes not in your time, assuredly he will come in the time of your children, and will conquer all in this country, and forget you and yours and exalt himself and his people for years to come." Then were they exceeding cast down. They knew well that he did not lie. So they believed him, and said: "What can we do to avert this great calamity?" He replied, "There is no cure but resignation." They resigned themselves. But the people were still grieving over this loss of dominion at some distant time, when Bagoda,[1] a generation later, came with his host to Kano. There is a dispute, however. Some deny this, and say that it was Bagoda's grandson[2] who first reached Kano, and that he[3] and his son[4] died at Sheme. He, at all events, entered Kano territory first. When he came, he found none of Barbushe's men, save Janbere, Hambarau, Gertsangi, Jandamissa, and Kanfatau. These said, "Is this man he of whom Barbushe told us?" Janbere said, "I swear by Tchububurai if you allow this people within our land, verily they will rule you, till you are of no account." The people refused to hearken to the words of Janbere, and allowed the strangers to enter the country, saying: "Where will Bagoda find strength to conquer us?"

So Bagoda and his host settled in Gazarzawa and built houses there. After seven months, they moved to Sheme. The district from Jakara to Damargu was called Gazarzawa; from Jakara to Santolo was called Zadawa; from Santolo to Burku was called Fongui; from Banfai to Wasai was called Zaura. From Wateri to the rock of Karia was called Dundunzuru: from Santolo to Shike, Shiriya: from Damargu to Kazaurė, Sheme: from Burku to Kara, Gaudė: from Kara to Amnagu, Gija: from Karmashe to Ringim, Tokawa. Now the chiefs whom Bagoda found holding sway over this land acknowledged no supreme lord save Tchunburburai and the grove of Jakara. Jakara was called "Kurmin Bakkin Rua," because its water was black, and it was surrounded by the grove.[5]

[1] Bagoda. He was son of Bauwo son of Bayajidda, of the stock of Ham the son of Noah. It was by reason of his high lineage, that Bauwo conquered all Hausaland—he and his six sons. The first of them was Kazura: then came Bagoda, Ubandoma, Gamgama, Kumaio, and Kasanki. When Bauwo died, Kazura became Emir of Daura. Bagoda went to Kano, Ubandoma to Kobir, Gamgama to Zakzak, Kumaio to Kashina, and Kasanki to Kur or Nero. This is a reliable account in a book of the names of the Emirs of Kano.

[2] Gijinmasu. [3] Bagoda. [4] Warisi. [5] The "Ghailata" means trees.

The pagans stood in awe of the terrors of their god and this grove, which stretched from Gorondumasa to Dausara. The branches and limbs of its trees were still—save, if trouble were coming on this land, it would shriek thrice, and smoke would issue forth in Tchuburburai, which was in the midst of the water. Then they would bring a black dog and sacrifice it at the foot of Tchuburburai. They sacrificed a black he-goat in the grove. If the shrieks and smoke continued, the trouble would indeed reach them, but if they ceased, then the trouble was stayed. The name of the grove was Matsama and the name of Tchunburburai was Randaya.

The greatest of the chiefs of the country was Mazauda, the grandfather of Sarkin Makafi. Gijigiji was the blacksmith: Bugazau was the brewer: Hanburki doctored every sickness: Danbuntunia, the watchman of the town at night, was the progenitor of the Kurmawa. Tsoron Maje was "Sarkin Samri," and Jandodo was "Sarkin Makada Gundua da Kuru." Beside these there was Maguji, who begot the Maguzawa, and was the miner and smelter among them. Again there was Asanni the forefather of minstrels and chief of the dancers. Bakonyaki was the archer. Awar, grandfather of the Awrawa, worked salt of Awar. He was Sarkin Rua of this whole country. In all there were eleven of these pagan chiefs, and each was head of a large clan. They were the original stock of Kano.

I. BAGODA, SON OF BAUWO.

A.H. 389–455. A.D. 999–1063.

Then came Bagoda with his host, and was the first Sarki of this land. His name was Daud. His mother's name was Kaunasu. He began by occupying Dirani for two years. Thence he moved to Barka, and built a city called Talutawa, where he reigned two years.

The names of the pagan chiefs whom Bagoda met, were Jankare, Biju, Buduri (who had many children—about a hundred) and Ribo. Bagoda overcame them, and killed their leader Jankare. Then he came to Sheme, and found Gabusani, Bauni, Gazauri, Dubgege, Fasataro, and Bakin Bunu there. He conquered them all, and built a city, and reigned at Sheme sixty-six years.

II. WARISI, SON OF BAGODA.

A.H. 455–488. A.D. 1063–1095.

The second Sarki was Warisi son of Bagoda. His mother's name was Saju. Those who were near him were Galadima Mele, Barwa Jimra, Buram (so called because he was the Sarki's son), Maidawaki Abdulahi, Sarkin Gija Karmayi, Maidalla Zakar, Makuwu, Magaaiki Gawarkura, Makama Gargi, Jarumai Goshin Wuta, Jarmai Bakushi, Bardai Duna, and Dawaki Surfan. These were the most important chiefs, but there were many more. Gawarkura said, "O Sarki of this land, if you wish to govern it, east and west and south and north, keep close to Gazarzawa, since it is the key of the country, and has not a strong god. When you

come there, beguile the chiefs with gifts, and so rule them and their god." The Sarki replied, "No, I have not the strength; I am too old." Warisi ruled Kano thirty-three years.

III. GIJIMASU, SON OF WARISI.

A.H. 488–528. A.D. 1095–1134.

Gijimasu son of Warisi was the third Sarki. His mother's name was Yānas. When he came to power he left Sheme and went to Gazarzawa. Some, however, say that it was his son Tsaraki who came to this place and built a city. The latter is the better version. It was here he ruled. Mazuda said, "This Sarki has come here in order to destroy our god and our grove of sacrifice." The people said, "He has not power to destroy our god, in our time at least." So Gijimasu and his people built a house in Gazarzawa. He beguiled the elders with gifts, till by his gifts he obtained dominion over them. They said, "What a good man this is! how well he treats us!" Mazuda said, "I want to give my daughter to his son in marriage." But Bugazau prevented him carrying out his plan. The Sarki consulted the people about building a city. The people agreed: "Come," they said, "let us build, for we have the power and the strength." So they began to build the city. They began the wall from Raria. The Sarki slaughtered a hundred cattle on the first day of the work.

They continued the work to the gate of Bazugar, and from there to the water gate and on to the gate of Adama, and the gate of Gudan: then past the gates of Waika, Kansakali, and Kawungari as far as the gate of Tuji. There were eight gates. Sarkin Rano built a city called Zamnagaba. He began building from Rimin Kira, and carried the wall through Wawan Toro, Tafasa, Kusarua, and Kadába to the gate of Bai. He ruled all the country as far as the lands of Sarkin Gano, Sarkin Dab, Sarkin Debbi, Sarkin Ringim, and Dan Baḳonyaki. Santolo alone stood out against him, for its people were many and pagans. No one was able to rule over them. The Sarkis of Gano, Dab, and Debbi came to Hausaland nine years before Bagoda. But Buram, Isa, Baba, Kududufi, Akassan, and others of the Kano chiefs, men of the princely clan,[1] came with Bagoda. Gijimasu ruled forty years—then he died.

IV. NAWATA AND GAWATA.

A.H. 528–530. A.D. 1134–1136.

The rule of the twins Nawata and Gawata, children of Gijimasu, was the fourth reign Their mother was Munsada. Together they ruled the city of Kano for seven months; then one of them died; the other was left. The remaining one ruled one year and five months, and then he died. Altogether they ruled two years.

[1] For this reason all their descendants were called after these, their forefathers, and the names have remained as "titles" of princes to this day. Such titles are Dan Buram, Dan Isa, Dan Baba, Dan Akassan, Dan Kududufi and others, like Dan Dermai and Dan Goriba.

V. YUSA OR TSARAKI, SON OF GIJIMASU.

A.H. 530–590. A.D. 1136–1194.

The fifth Sarki was Yusa, called Tsaraki. He was the son of Gijimasu. He it was who completed the walls of Kano, as is well known. He raided Karaie, and camped at Badari five months till the inhabitants submitted to him. From Gurmai to Farinrua the people paid him tribute. Then he returned to his country. His mighty men of war were Tuje, Fasau, Iyagari, and Kamfaragi. All these had no fear in war. In Yusa's reign shields (*Garkwa*) were first used. He reigned sixty years. The name of his mother was Yankuma or Yankuna. He died.

VI. NAGUJI, SON OF TSARAKI.

A.H. 590–645. A.D. 1194–1247.

The sixth Sarki was Naguji. His mother's name was Yankuma or Muntáras. He was generous, but a man of violent passions. From Kura to Tsangaya he ravaged the country, and forced the people, willing or unwilling, to follow him. He camped at Basema two years for the purpose of attacking Santolo, but he was worsted in the war and returned to Kano. He found the pagans there on the verge of revolt; so he cajoled them with talk. and executed their leader, Samagi, the son of Mazadau, Dorini son of Bugazau, Burtsar Gānguta son of Tsoron Maje, and Buzuzu son of Jandodo. When they were dead the rest of the people said, "We are willing to follow you, O Sarki, because we must." The Sarki said to them, "If you are willing to follow me show me the secrets of this god of yours." But they replied, "We will not show you the secrets of our god." So the Sarki punished them. Naguji was the first Sarki who collected a land tax of one-eighth of the crop from all husbandmen. He ruled all the land of Kano save Santolo which stood out against him. He ruled fifty-five years.

VII. GUGUA, SON OF GIJIMASU.

A.H. 645–689. A.D. 1247–1290.

Gugua was the seventh Sarki. His mother's name was Munsada. He was a man of much tact and subtlety. He had a face remarkable for its expression. He was liberal, eloquent, wise, and magnanimous. All these qualities he turned to account in ruling the pagans and in discovering the mysteries of their god. They hated him. When he knew that they hated him he said to his men, "How shall I plan to get the better of these pagans and destroy their god." Ture and Galadina Bangare and Berde Kilmo said, "There can be no plan between them and us, nothing but war; we will conquer them and their god." When the pagans heard of this they said in secret, "When the ears hear, then is the body saved." The chief pagans assembled at dead of night, forty in number, at the foot of the sacred tree. Allah alone knows what took place there. They came forth when

the sun rose and went to the Sarki. They said, "O Sarki, when the night of Idi comes we will tell you the mysteries of our god." He agreed, for he was glad at heart, and gave them gifts abundantly. That night an apparition appeared to the Sarki in his sleep—a man with a red snake in his hand. He struck the Sarki with the snake and said to him, "Of two things choose one. Either thou mayest know the mysteries, in which case thou wilt die, or thou mayest not know the mysteries, in which case thou wilt not die." The Sarki said, "No! No! No!"

Now when the Sarki rose from his sleep he told his men what he had seen in the vision. They said to him, "What do you see in it?" He said, "What do *you* see?" They said, "We see war?" The Sarki said nothing, he spoke not a word, but suddenly he was struck blind. He remained blind for many years. He ruled Kano forty-four years. Twenty-two years he saw, and twenty-two he was blind. Then the power passed from him.

VIII. SHEKKARAU, SON OF TSARAKI.

A.H. 689–706. A.D. 1290–1307.

The eighth Sarki was Shekkarau. His mother's name was Auta. When he became Sarki his men said to him, "Sarkin Kano, what do you see in the talk of the people of this city?" He said, "I see nothing between us except things we can settle without fighting." They replied, "If you try to make peace with the people they will say that you are afraid. If they come to you and make smooth talk, turn away from them; then you would not be acting wrongly. If matters do not fall out thus we will fight them, and if we prevail over them we will cut the throats of all their chief men and destroy their god." These counsels prevailed. All the pagans came to the Sarki with many presents and said, "Sarki, and Lord over us, we come to you to say to you one word: do not take notice of what we have done, we pray you, but put away the slanderous counsel of your advisers. If the domains of a ruler are wide, he should be patient; if they are not so, he will not obtain possession of the whole country by impatience." The Sarki said to them, "Your talk is true," and left them their customs and power. They said, "Were it not for fear of what may result we would have told the Sarki the secrets of our god." The chief of them, Samagi, said, "If we show him the secrets of our god we shall lose all our power, and we and our generation will be forgotten." So the dispute continued till the Sarki died. Shekkarau was Sarki seventeen years.

IX. TSAMIA, SON OF SHEKKARAU.

A.H. 706–743. A.D. 1307–1343.

The ninth Sarki was Tsamia, called Barandamasu. His mother's name was Salmata. In his time the cult of Tchibiri was first practised. When he came to the throne he assembled the pagans and said to them, "Love transmits love, and hate transmits hate; there is nothing between us except bows and spears and

swords and shields; there is no deceit and no deceiver except he who is afraid." Tsamia excelled all men in courage, dignity, impetuosity in war, vindictiveness, and strength. He had nine men who were equal to a thousand. The greatest was Madawaki Bajeri, and after him Burdi-Kunkuru, Dan-kududufi-Tanko, Dan Burran Bakaki, Jarumai Garaji, Makama Gumki, Danunus Baurire, Sarkin Damargu Gabdodo and Jekafada Masabi. When these men came to the battle-field with their Sarki they feared nothing, but were ever victorious. Now when the pagans of Kano heard the words of their Sarki, fear seized their hearts. They assembled at the place of their god and prayed to be shown who would gain the mastery, they or the Sarki. It was foretold them that they would be overcome. They knew that their god would not lie. Their chief said, "I see no means of deliverance from the Sarki except we pay him money." His men said, "We agree." So they were made to pay jizia. They collected two hundred slaves within seven days and took them to the Sarki. The Sarki said, "I do not want your slaves." So they returned home. Now on a certain Saturday the Sarki sent a messenger called Marukarshi to them saying to him: "Tell them that on Thursday I am coming to Kagwa,[1] if Allah so wills, that I may enter, and see what is inside. I will destroy the wall and burn the tree." So the messenger went and told them. When they heard the word of the Sarki, they assembled on the Thursday at the place of their god, pagans of town and country alike—a crowd as had never been seen before. Of drums and cymbals there were a thousand and four hundred and more than four hundred captains of spearmen. They marched round the place of their god from evening until the morning. When the morning broke Sarkin Kano came forth from his house, and went to the place of the god. In front of him were seventy men, each with a shield made of elephant's hide. When the Sarki came near to the place of the god he prevented the pagans entering. As the fight waxed hot, the Sarki cried, "Where is Bajeri?" Bajeri heard the words of the Sarki, and took a spear and rushed into the battle, cutting his way until he reached the wall of the sacred place. He entered, and seeing a man with his back against the tree holding a red snake, attacked him. The man leapt up and made a great shout; fire breathed from his mouth until smoke filled the whole place round about; he rushed out; and, in his attempt to flee, made for the water-gate, followed by the Sarki, and plunged into the water. The Sarki and his followers stayed hunting for the man in the water, but he escaped and went to Dankwoi, where they left him. Hence it is that if any warrior drinks the water of Dankwoi he does not prevail in battle. The Sarki returned to the tree, and destroyed the wall together with all else connected with "Tchibiri" which was beneath the tree. All the pagans had in the meantime fled, except Makare Dan Samagi and Dunguzu Dan Dorini. The Sarki said to them, "Why do you not run away?" They said, "Where were we to run to?" "Praise be to God," said the Sarki. "Tell me the secret of your god." They told him. When he had heard, the Sarki said

[1] The place of their sacrifices.

to Danguzu, "I make you Sarkin Tchibiri." He said to Makare, "I make you Sarkin Gazarzawa." He said to Gamazo, "I make you Sarkin Kurmi." In the time of this Sarki long horns were first used in Kano. The tune that they played was "Stand firm, Kano is your city." He reigned thirty-seven years.

X. OSUMANU ZAMNAGAWA, SON OF SHEKKARAU.

A.H. 743–750. A.D. 1343–1349.

The tenth Sarki was Zamnagawa, called Osumanu. The name of his mother was Kumyerku. He was called Zamna-gawa because he killed Tsamia. He shut the doors of the palace and remained in his house for seven days. After that day he went out. It is not known how Tsamia was made away with; whether Zamnagawa ate him or buried him, no one knows. In the time of Zamnagawa, there was no war in the land, east and west, north and south. All was peace. The Maguzawa left the city and went to live in the country at Fongui. The Rumawa came in a body to the Sarki. They said to him, "You are our Sarki, you have made a Sarkin Gazarzawa and a chief of the Kurmawa, make us a chief also." The Sarki said, "I hear." So they went back to their homes. The Sarki then took counsel with his men and said, "I want to give my son the chieftainship of the Rumawa." And all his men said, "We agree." So he gave his son the chieftainship of the Rumawa, whose town had become great and populous. Zamnagawa ruled seven years.

XI. YAJI, SON OF TSAMIA.

A.H. 750–787. A.D. 1349–1385.

The eleventh Sarki was Yaji, called Ali. His mother was Maganarku. He was called Yaji because he had a bad temper when he was a boy, and the name stuck to him. He drove the Serikin Rano from Zamna Gaba, went to Rano, and reigned at Bunu two years. Then he removed to Kur together with the Ajawa and Worjawa and Aurawa. He stayed there. In Yaji's time the Wongarawa came from Mele, bringing the Muhammadan religion. The name of their leader was Abdurahaman Zaite. Others were Yakubu, Mandawali, Famori, Bilkasim, Kanaji, Dukere, Sheshe, Kebe, Murtuku, Liman Jibjin Yallabu, the father of Serikin Pawa, Gurdumus, Auta, Laual, Liman Madatai and others—about forty in all. When they came they commanded the Sarki to observe the times of prayer. He complied, and made Gurdamus his Liman, and Laual his Muezzin. Auta cut the throats of whatever flesh was eaten. Mandawali was Liman of all the Wongarawa and of the chief men of Kano. Zaite was their Alkali. The Sarki commanded every town in Kano country to observe the times of prayer. So they all did so. A mosque was built beneath the sacred tree facing east, and prayers were made at the five appointed times in it. The Sarkin Gazarzawa was opposed to prayer, and when the Moslems after praying had gone home, he would come with his men and defile the whole

mosque and cover it with filth. Danbugi was told off to patrol round the mosque with well-armed men from evening until morning. He kept up a constant halloo. For all that the pagans tried to win him and his men over. Some of his men followed the pagans and went away, but he and the rest refused. The defilement continued till Sheshe said to Famori, "There is no cure for this but prayer." The people assented. They gathered together on a Tuesday in the mosque at the evening hour of prayer and prayed against the pagans until sunrise. They only came away when the sun was well up. Allah received graciously the prayers addressed to him. The chief of the pagans was struck blind that day, and afterwards all the pagans who were present at the defilement—they and all their women. After this they were all afraid. Yaji turned the chief of the pagans out of his office and said to him, "Be thou Sarki among the blind." In the days of Yaji, it is said, Sarkin Debbi, Sarkin Dab and Sarkin Gano brought horses to Kano, but this story is not worthy of credence. Yaji said to the Wongarawa, "I want you to make prayer so that I may conquer the men of Santolo, for if I conquer Santolo every town in the country will follow me, since Santolo is the key of the south." They said, "We will pray for you—but we will not pray except beside the moat of Santolo itself." So the Sarki set forth together with the Wongarawa, and they went to Santolo. He had with him a hundred and eleven men. Fifty of them were in front of the Wongarawa and sixty in front of himself. The chief among his men were Jarumai Gobarra Dagga Samma, Jakafada Kulli, Ragumar Giwa, Makama Butache, Maidawaki Koamna, Berdi Sheggi, Sarki Zaura Gamati, Dan Buram Gantururu, Dan Maköo Dagazo, Galadima Tuntu and Sarkin Surdi Maguri. Others were Gauji, Garoji, Tankarau, Kargagi, Karfasha, Kutunku Toro, Kampachi, Gorongiwa the Galadima,[1] Zaki, Bambeli and others—altogether sixty.

Now when he came to Santolo, the Sarki camped near Duji. Duji was the name of a man. In the dead of night the Wongarawa went to Santolo together with Yaji and marched round the city and prayed till daybreak. When the day broke they returned to their camp. When the sun was up they returned to Santolo eager for battle. The men of Santolo came out of the town and met them in the open. Fighting went on from morning until night. Neither side prevailed. The Kanawa retired to Duji; the men of Santulu returned to their homes. The Sarkin Kano was very sore at heart. Famori said, "Do not be grieved! if Allah so wills we will defeat them." The Sarki was pleased with his talk. Kosa, the Sarki's slave, said, "My lord, I will tell you the secrets of the enemy: there are eight men inside the city and no one can pass the moat unless he kills them." Famori said, "Do you know their names?" He said, "I know them." So Famori said, "What are their names?" And Kosa replied, "The name of the greatest is Hambari, and after him Gwoshin Bauna. Kafiwuta, Gurgurra Karifi, Gandar Giwa, Hamburkin Toka, Zan Kaddakere and Gumbar Wakke. Gwoji said, "If I see Hambari I will kill him, if Allah so wills." At sunrise the Sarki returned to the attack on Santolo

[1] From this all Galadimas are called Gorongiwa.

with black looks. He took a spear in his hand. Gwoji[1] was in front of him, Zaite was on his right hand, Famori on his left, and behind him was Sheshe. Behind them were the rest of the Wongarawa and Kanawa. When they came near to Santolo all the pagans came out to battle. Gwoji saw Hambari, and girding up his loins dashed into the fray. The pagans rushed at Gwoji, but he withstood them, and when they gave way, lunged at Hambari with his spear. Hambari caught him by the throat and dragged him from his horse; but in vain, for Gwoji drew his knife, and ran him through, and so he died. Then Gwoji mounted his horse and entered Santolo, and all the Kanawa followed him and stormed the town. The Sarki commanded all the inhabitants to be killed except women and little children. Gwoji entered the place of their god, with Kosa and Guragu, and found a bell, and two horns, a battle-axe and leg-irons. Gwoji took the bell and the two horns. Kosa took the battle-axe, and Guragu the leg-irons. Yaji stayed seven days in the town and destroyed the place of sacrifice, and after dismantling its wall and tree, returned to Kano. He said to Gwoji, "Choose whatever you want." Gwoji said, "I only want to become Madawakin Kano." The Sarki said, "I give you the office."

Gasatoro, who was turned out of the post of Madawaki, built a house at Gawo, and for that reason was known as Madawakin Gawo, to distinguish the two. The next year the Sarki went to war with Warji and stayed there some time. At this time all the pagan tribes were subject to him, from Biyri to Fanda. The Kworarafa alone refused to follow him, so he went to their country. When he came to their town, they were afraid to fight and all fled up the hill at Tagara. The Sarki camped there also for seven months. No one came down from the rock. At last the pagans paid him a hundred slaves. Because of this the song in praise of Yaji was made, which runs: "Yaji, conqueror of the rocky heights, scatterer of hosts, lord of the town." It is said that he died here at Kworarafa. Perhaps he died at Kano. He ruled thirty-seven years.

XII. BUGAYA, SON OF TSAMIA.

A.H. 787–792. A.D. 1385–1390.

The twelfth Sarki was Bugaya, called Mohammed. He had the same father and mother as Yaji. The name of his mother was Maganarku. The reason he was called Bugaya was as follows. After Zamnagawa killed Tsamia, he made overtures to his widow Maganarku, but she said, "I am with child." So Zamnagawa gave her drugs, without her knowledge, to procure an abortion. In spite of this, however, she gave birth to a living child, and gave him the name of Bugaya. It was this Sarki who ordered the Maguzawa to leave the rock of Fongui and scatter themselves through the country. He then gave all

[1] Hence the Madawakin Kano is sung as Gwoji Maikwugi, Kosa as Kosa Maibarandami, and Guragu as Guragu of the Meri. Afterwards Kosa was given the title of Dawaki, and Guragu that of Dan Maji—thus it is related.

power into the hands of the Galadima, and sought repose. The country was now peaceful, and regular tribute was paid to the Sarki. No one knew anything of his character even to the day of his death. He reigned five years. When he died the Liman Madatai was ordered to pray over his body and Lowal to wash it and Turbana, Jigawa and Kusuba to help him. They washed the body and put it in a shroud, and took it out to burial. The Liman prayed over the body. Bugaya was the first Sarkin Kano who was buried at Madatai.

XIII. KANAJEJI, SON OF YAJI.

A.H. 792–812. A.D. 1390–1410.

The thirteenth Sarki was Kanajeji. His father's name was Yaji. His mother's name was Aunaka. He was a Sarki who engaged in many wars. He hardly lived in Kano at all, but scoured the country round and conquered the towns. He lived for some time near the rock of Gija. He sent to the Kworarafa and asked why they did not pay him tribute. They gave him two hundred slaves. Then he returned to Kano and kept sending the Kworarafa horses while they continued to send him slaves. Kanajeji was the first Hausa Sarki to introduce "Lifidi" and iron helmets and coats of mail for battle. They were introduced because in the war at Umbatu the losses had been so heavy. He visited Kano and returned to Umbatu the next year, but he had no success in the war. He returned a second time to Kano, and again went out the following year. He again failed, but said, "I will not return home, if Allah wills, until I conquer the enemy." He remained at Betu two years. The inhabitants, unable to till their fields, were at length starved out, and had to give in to him. They gave him a thousand male, and a thousand female slaves, their own children. They also gave him another two thousand slaves. Then peace was made. The Sarkin Kano said: "No one shall again conquer Umbatu as I have conquered it, though he may gain spoil." In the following year the Sarki made war on Zukzuk and sat down in Turunku. The men of Zukzuk came out and defeated the Kano host, saying, "What is Kano! Kano is 'bush.'" The Sarkin Kano went back to Kano in a rage and said: "What shall I do to conquer these men of Zukzuk?" The Sarkin Tchibiri said: "Re-establish the god that your father and grandfather destroyed." The Sarki said: "True, but tell me what I am to do with it." The Sarkin Tchibiri said: "Cut a branch from this tree." The Sarki cut off a branch. When it was cut, the Sarki found a red snake in the branch. He killed the snake, and made two *huffi* with its skin. He then made four *dundufu* and eight *kuntakuru* from the branch. These objects he took to Dankwoi and threw them into the water and went home. After waiting forty days he came back to the water, and removed the objects to the house of Sarkin Tchibiri. Sarkin Tchibiri sewed the rest of the snake's skin round the drums and said to Kanajeji, "Whatever you wish for in this world, do as our forefathers did of old." Kanajeji said: "Show me, and I will do even as they did." The Sarkin Tchibiri took off his robe and put on the *huffi* of

snake's skin and walked round the tree forty times, singing the song of Barbushe. Kanajeji did as Sarkin Tchibiri did, and walked round the tree forty times. The next year he set out to war with Zukzuk. He encamped at Gadaz. The Sarkin Zukzuk came out and they fought; the men of Kano killed the Sarkin Zukzuk. The Zukzuk men fled, scattered in ones and twos, and the chiefs of Zukzuk were killed. The Sarkin Kano entered Zukzuk and lived there close to the Shika eight months. The people gave him a vast amount of tribute. Because of this feat the song of Kanajeji was sung, which runs: "Son of Kano, hurler of the *kere*, Kanajeji, drinker of the water of Shika, preventer of washing in the Kubanni, Lord of the town, Lord of the land." Kanajeji returned to Kano. Among his great men of war were Berdi Gutu, Jarumai Sabbo, Maidawaki Babaki, Makama Toro, Dan Burram Jatau, Jakafada Idiri, Jambori Sarkin Zaura Bugau, Lifidi Buzuzu and Dan Akassan Goderi. He reigned twenty years.

XIV. UMARU, SON OF KANAJEJI.

A.H. 812–824. A.D. 1410–1421.

The fourteenth Sarki was Umaru. He mother's name was Yatara. He was a mallam earnest in prayer. He was a pupil of Dan Gurdamus Ibrahimu and a friend of Abubakra. When he became Sarkin Kano, his friend upbraided and left him and went to Bornu, where he remained eleven years. On his return to Kano, finding Umaru still Sarkin Kano, he said to him: "O Umaru, you still like the fickle dame who has played you false, with whom better reflection refuses to be troubled. In time you will be disgusted, and get over your liking for her. Then regret will be futile even if you do regret." He preached to him about the next world and its pains and punishments. He reviled this world and everything in it. Umaru said, "I accept your admonition." He called together all the Kanawa, and said to them: "This high estate is a trap for the erring: I wash my hands of it." Then he resigned, and went away with his friend. He spent the rest of his life in regret for his actions while he had been Sarki. Hence he was called "Dan Terko." He ruled twelve years. In his time there was no war and no robbery. The affairs of Kano were put into the hands of the Galadima. For this reason it was said of the Galadima Dana that he was the "Trusted guardian of the city, the dust-heap of disputes."

XV. DAUDA, SON OF KANAJEJI.

A.H. 824–841. A.D. 1421–1438.

The fifteenth Sarki was Dauda Bakon Damisa. His mother was Auta. In his time Dagachi, a great prince, came from South Bornu with many men and mallams. He brought with him horse-drums and trumpets and flags and guns. When he came he sat down at Bomfai. The Sarkin Kano went to see him. When he saw that he was indeed a great prince, he returned home and took

counsel with his men and said, "Where is this man to stay?" The Galadima Babba said, "If you let him settle elsewhere than in Kano town, he will soon be master of that part of the country." The Sarki said, "Where can he stay here with his army—Kano is full of men—unless we increase the size of our town?" The Galadima was sent to see Dagachi and returned with him, and built a house for him and his men at Dorai. The Sarki said to his men, "What shall I give him to please him, and to make his heart glad?" The Galadima Babba said, "Give him whatever you wish, you are Sarki, you own everything." The Sarki said nothing. At that time he was about to start for war with Zaria, so he said to Dagachi, "When I go to war I will put all the affairs of Kano into your hands, city and country alike." So the Sarkin Kano went to war and left Dagachi in the town. Dagachi ruled the town for five months and became very wealthy. Then the Sarki returned. At this time Zaria, under Queen Amina, conquered all the towns as far as Kworarafa and Nupe. Every town paid tribute to her. The Sarkin Nupe sent forty eunuchs and ten thousand kolas to her. She first had eunuchs and kolas in Hausaland. In her time the whole of the products of the west were brought to Hausaland. Her conquests extended over thirty-four years. I will leave now the story of Amina and return to Sarkin Kano. Dauda Bakon Damisa ruled Kano seventeen years.

XVI. ABDULAHI BURJA, SON OF KANAJEJI.

A.H. 841–856. A.D. 1438–1452.

The sixteenth Sarki was Abdulahi Burja. His mother's name was Tekidda. There was no one like him for generosity. He was the first in Hausaland to give Bornu "tsare or gaisua." He opened roads from Bornu to Gwanja. He was the first to own camels in Hausaland. Sarkin Bornu left his country at this time and went to attack Asben, but as he could not find any water for his army he returned home. The next year every town in the west paid him "tsare." The Sarkin Kano went out to Khud and encamped there one year and six months. The Galadima Daudu went to wage war in the south. In Burja's time Karmashi conquered the Migawa. The Sarki went to Dussi. The Galadima Daudu said to him, "Return to Kano, I will do for you whatever you want done, and defeat your enemies." So the Sarkin Kano returned home. When he arrived in Kano, he found that Dagachi had assumed great power in the town, and collected wealth without end, and had built houses from his house as far as Salamta. It was Dagachi who made the market of Karabka. All this time the Galadima Daudu was in the south making war on the pagans every day, conquering them and taking them as slaves. Every month he sent a thousand slaves to Sarkin Kano. All the people of Kano flocked to him. There was no one left in Kano except the Sarki and very old men. Every day the Sarki sent to the Galadima horses, clothes and horse trapping.

The Galadima was sung as follows:—

Gatherer of the axes of the south :
Gatherer of the youth of the south :
Drum of Wealth, Galadima :
Drum of Land, Galadima.

He stayed seven years in the south. Slaves became very numerous in Kano. The Sarki sent to him to tell him to come back, so he returned. When he was returning, he stopped every three miles, and built a town. He left at each a thousand slaves, five hundred males, and five hundred females. He thus founded twenty-one towns, before he came to Kano. On arriving there he gave the Sarki three thousand slaves and said to him, "I have founded twenty-one towns, and in each I have left a thousand slaves, all yours." The Sarki asked him, "What are the names of the towns you have built?" The Galadima said, "Their names are Ibdabu." The Sarki said, "I make you ruler of all these towns and their domains." Because of this the Galadima was called "Daudu, the strength of the city." The next year the Sarki sent to Dussi to ask for a wife. He was the first Sarki who married a daughter of Sarkin Dussi, Sarkin Shirra and Sarkin Rano, and also a daughter of the Galadima. He ruled fifteen years.

XVII. DAKAUTA, SON OF ABDULAHI BURJA.

A.H. 856. A.D. 1452.

The seventeenth Sarki was Dakauta. He was dumb. The people said, "If he becomes Sarki he will be able to speak." When he had been made Sarki, and after one night did not speak, they turned him out again.

XVIII. ATUMA, SON OF DAKAUTA.

A.H. 856. A.D. 1452.

The eighteenth Sarki was Atuma, son of Dakauta. He was king for seven days only. He was turned out of the office of Sarki, for fear of trouble with the Galadima Dauda.

XIX. YAKUBU, SON OF ABDULAHI BURJA.

A.H. 856–867. A.D. 1452–1463.

The nineteenth Sarki was Yakubu, son of Tasafi. He was a good Sarki. In his time Agalfati came to Kano; he was Sarkin Gaia, and son of Sarkin Machina. Gaia came with his three brothers who became Sarkin Hadeijia, Sarkin Dal and Sarkin Gaiam. The Sarkin Hadeijia became Sarkin Gabbas, and was given Hadeijia. The Sarkin Gaia came to Kano and was given Gaia. The Sarkin Dal came to Kano and was given Dal. Sarkin Gaiam went to Zaria and was given Gaiam. In Yakubu's time the Fulani came to Hausaland from Mele, bringing

with them books on Divinity and Etymology. Formerly our doctors had, in addition to the Koran, only the books of the Law and the Traditions. The Fulani passed by and went to Bornu leaving a few men in Hausaland, together with some slaves and people who were tired of journeying. At this time too the Asbenawa came to Gobir, and salt became common in Hausaland. In the following year merchants from Gwanja began coming to Katsina; Beriberi came in large numbers, and a colony of Arabs arrived. Some of the Arabs settled in Kano and some in Katsina. There was no war in Hausaland in Yakubu's time. He sent ten horses to the Sarkin Nupe in order to buy eunuchs. The Sarkin Nupe gave him twelve eunuchs. Yakubu ruled Kano eleven years.

XX. MOHAMMA RIMFA, SON OF YAKUBU.

A.H. 867–904. A.D. 1463–1499.

The twentieth Sarki was Mohamma, son of Yakubu, commonly called Rimfa. His mother's name was Fasima Berana. He was a good man, just and learned. He can have no equal in might, from the time of the founding of Kano, until it shall end. In his time the Sherifs came to Kano. They were Abdu Rahaman and his people. There is a story that the Prophet appeared to Abdu Rahaman in a dream and said to him, "Get up and go west and establish Islam." Abdu Rahaman got up and took a handful of the soil of Medina, and put it in a cloth, and brought it to Hausaland.

Whenever he came to a town, he took a handful of the soil of the country and put it beside that of Medina. If they did not correspond he passed that town. So he journeyed until he came to Kano. And when he compared the soil of Kano with Medina soil they resembled one another and became as one soil. So he said, "This is the country that I saw in my dream." And he took up his abode at Panisau. Then he sent in to the Sarkin Kano. The Sarkin Kano Rimfa went out together with his men, and escorted Abdu Rahaman back to the city together with his men, of whom the chief were Hanatari, Gemindodo, Gadangami, Fokai and others, ten in all. Abdu Rahaman lived in Kano and established Islam. He brought with him many books. He ordered Rimfa to build a mosque for Friday, and to cut down the sacred tree and build a minaret on the site. And when he had established the Faith of Islam, and learned men had grown numerous in Kano, and all the country round had accepted the Faith, Abdu Karimi returned to Massar, leaving Sidi Fari as his deputy to carry on his work.

Rimfa was the author of twelve innovations in Kano. He built the Dakin Rimfa. The next year he extended the walls towards the Kofan Mata from the Kofan Dagachi and continued the work to Kofan Gertawasa and Kofan Kawayi, and from the Kofan Naissa to the Kofan Kansakali. The next year he entered his house. He established the Kurmi Market. He was the first Sarki who used "Dawakin Zaggi" in the war with Katsina. He was the first Sarki who practised "Kame." He appointed Durman to go round the dwellings of the Indabawa and

take every first-born virgin for him. He was the first Sarki to have a thousand wives. He began the custom of "Kulle." He began the "Tara-ta-Kano." He was the first to have "Kakaki" and "Figinni," and ostrich-feather sandals. It was in his reign that the Sallam Idi was first celebrated in Kano at Shadakoko. He began the custom of giving to eunuchs the offices of state, among them, Dan Kusuba, Dan Jigawa, Dan Tarbana, Sarkin Gabbas, Sarkin Tudu, Sarkin Rua, Maaji, Sarkin Bai, Sarkin Kofa. There were four eunuchs left without a title. He said to them, "I make you chiefs of the Treasury." The name of one was Turaki, another was Aljira; the names of the other two were Al-Soro and Kashe Kusa.

The Galadima Dabuli built a house at Goda, and the Madawaki Badosa built a house at Hori. Chiroma Bugaya built a house at Dabazaro. Surely there was no Sarki more powerful than Rimfa! He was sung as: "The Arab Sarki, of wide sway." In his time occurred the first war with Katsina. It lasted eleven years, without either side winning. He ruled thirty-seven years.

XXI. ABDULAHI, SON OF MOHAMMA RIMFA.

A.H. 904–914. A.D. 1499–1509.

The twenty-first Sarki was Abdulahi. His mother's name was Auwa. Her influence was very strong among the rulers of the day. She built the house at Doseyi, hence its name, "Giddan Madaki Auwa." In his time Ahmedu, who was afterwards Liman of Kano, arrived. Abdulahi conquered Katsina. He advanced as far as Katsina itself and encamped on the river near Tsagero. He remained four months at Tsagero and then went to Zukzuk and made war there. After conquering the men of Zaria he went on to Kadaura and to Kalam and made war on the inhabitants, after which he returned to Kano. On his arrival home he found that Dagachi was preparing to revolt, and that the Madaki Auwa alone had prevented serious trouble, as her influence was very great in Kano. This was the reason that Sarkin Bornu came to attack Kano, and camped at Gunduawa. The Sarkin Kano went out to meet him together with his mallams and humbled himself before him. The Sarkin Bornu went back to his country. As soon as he was gone, Abdulahi beguiled Dagachi into submission and then turned him out of his office and gave his own slave the title. He ruled Kano ten years.

XXII. MOHAMMA KISOKI, SON OF ABDULAHI.

A.H. 914–972. A.D. 1509–1565.

The twenty-second Sarki was Mohamma Kisoki. He was the son of Abdulahi and Lamis, who built a house at Bani-Buki and established a market there, and was the mother of Dabkare Dan Iya. Kisoki put him in the "Kano

nine," and for that purpose expelled Berde. Kisoki was an energetic Sarki, warlike and masterful. He ruled over all Hausaland east and west, and south and north. He waged war on Birnin Unguru because of Agaidam. When he entered the town, Sarkin Kano took his seat beneath the "kuka" tree, at the Kofan Fada, and assembling the inhabitants of the town at the Kofan Bai, reduced them to terrified submission. He gave orders that no men were to be made prisoners, but that only clothes and horses were to be taken. Then he left Unguru and lived for a month in the bush. The Sarkin Bornu sent to him and said: "What do you mean by making war?" Kisoki replied: "I do not know, but the cause of war is the ordinance of Allah." The Sarkin Bornu said nothing more. The men of Kano returned to Kano. In the next year the Sarkin Bornu came to attack Kano, but could not take the town and returned home. Then Kisoki said to one of his men, Dunki, "Mount the wall, and sing a song in praise of the Sarki and his men of war." Dunki went. The song that he sung was this: "Kisoki, physic of Bornu, and the Chiratawa." He sung it again and again, and after that he praised all those who were present at the fight; as Galadima Bawa, Mai-Dawakin Maisanda, Mai-Dawakin Gawo Magani, Dan Kudu Dufi Koamna, Makama Abdulahi, Makama Atuman, Dan Yerima Gajeren Damisa, Dan Buram Sagagi, Umoru Dan Maji, Dan Makoiyo Jigu, Dan Goriba Jar Garma, Dan Darmenkorau and Gaji Dan Bauni and many others, about forty in all. Dunki sang their praises for forty days on the top of the wall. After these he celebrated anyone else he thought worthy, as Madaki Koremma, Dagachi, Alkali Musa Gero, Sarkin Kasua, Liman Kano, Sarkin Bai, Dan Maji, Sarkin Yara, the eunuchs and San Turaki. The Madaki Auwa, because she was grandmother of Abdulahi, was also celebrated, in a song beginning: "Mother! Kano is your country. Mother! Kano is your town. Old lady with the swaggering gait, old lady of royal blood, guarded by men-at-arms." Others there were too—thirty-four in all. In Kisoki's time Shehu Tunus, who brought *Eshifa* to Hausa, came to Kano. Dan-Goron-Duma also came, and Shehu Abdu Salam, who brought with him the books *Madawwanna*, *Jam 'as-saghir* and *Samarkandi*. In the next year Tubi came from Zukzuk to learn from Shehu Tunus and became his chief disciple in Kano. Shehu Tunus told Kisoki to build a Friday Mosque for the Rumawa. Kisoki built it. A certain mallam named Shehu Karaski, and Magumi and Kabi came from Bornu. They were brothers. Kisoki took a liking to Shehu Karaski and asked him to become Alkali. He refused, and suggested his brother Magumi. Magumi agreed, and built a portico at the Kofan Fada. In Kisoki's time, Zaite, Tamma, Buduru, and Koda came to Kano. Kisoki ruled the town with his mother Iya Lamis and his grandmother Madaki Auwa, and Guli, the brother of Madaki Auwa. Guli was much respected by the Sarki; he came to have power over the whole country This is the reason every counsellor is called Na-Guli. Kisoki ruled Kano fifty-eight years.

XXIII. YAKUFU, SON OF KISOKI.

A.H. 972–973. A.D. 1565.

The twenty-third Sarki was Yakufu. His mother's name was Tunus. He was Sarkin Kano four months and twenty days. Guli deposed him. The Galadiman Kano Sara Katunia and Guli carried on civil war. There was forty days' fighting in Kano before the Galadima overcame and killed Guli and determined to re-establish Yakufu on the throne. Yakufu refused, and returned among the learned men to study. So he went and lived in the country which bears the name of Yakufawa. He was the father of Mohamma Shashere, Dauda Abasama, Sarkin Taura, Buduru, Sarkin Majia, Sarkin Gilima, Sarkin Kazura and Sarkin Gwunaka.

XXIV. DAUDA ABASAMA, SON OF YAKUFU.

A.H. 973. A.D. 1565.

The twenty-fourth Sarki was Dauda Abasama. His mother's name was Zuhara. He ruled one month and twenty days before he was turned out. His brothers, Kazura, Majia, and his sister, Buduru, so called because she was unmarried, Gilima, Taura and Gwunka, the youngest, joined him in his exile at a place called Karmashe. Dauda settled there and a house was built for him. The brothers each chose a place to live.

XXV. ABUBAKR KADO, SON OF RIMFA.

A.H. 973–980. A.D. 1565–1573.

The twenty-fifth Sarki was Abubakr Kado, son of Rimfa and full brother of Abdulahi. His mother's name was Auwa. In his time the men of Katsina worsted the men of Kano until they came to the very gates of Kano.

They encamped at Salamta. The men of Kano went out to fight, but they were beaten and scattered, and had to take refuge in the town. Devastation went on, and the country was denuded of people. The only place where anybody was found was in walled towns or rocks, as Karayi, Gwan-gwam, Maska, Tariwa, or any other rocky place. Abubakr Kado did nothing but religious offices. He disdained the duties of Sarki. He and all his chiefs spent their time in prayer. In his time eunuchs and mallams became very numerous. Kano was filled with people. Mallam Sherif, Tamma, Gesu and Wuri came to Hausa from Lagoni. Some people say they came from Bagarmi.

Tamma was the greatest of them. When they first came they lived in Katsina land. For this reason the place where they lived is called Tamma. Afterwards they moved to Kano and settled at Godia. The town was called Godia after a certain woman, a harlot. She and the Sarki reigned jointly over the town. The Sarkin Godia said to Tamma, "Settle at Godia." So Tamma settled at Godia and married Godia. Abubakr was the first Sarki who read the book

called *Eshifa* at the house of Dan Goronduma Kursiya. He was the Sarki who made the princes learn the Koran. This he did because of his own sons. They read the Koran well, and the reading was in the middle of Shaaban. Every morning after sunrise the princes assembled. The Sarki came out after early morning prayer. He had seven sons, each of which read a seventh of the Koran. He gave his sons great wealth. The eldest of them was Abdulahi, otherwise called Dan Kado Kisoki; Chiroma Yan Sarki was another; then Dauda Tsaga, Dan Ashia (Ashia was the Sarki's sister), Dari, and Tella. The Sarki built Goron Pugachi for the reading of the Koran. He began reading *Jam 'as-saghir*. He ruled Kano seven years and six months and then was deposed.

XXVI. MOHAMMA SHASHERE, SON OF YAKUFU.

A.H. 980–990. A.D. 1573–1582.

The twenty-sixth Sarki was Mohamma Shashere, son of Yakufu. His mother's name was Fasuma. He was unmatched for generosity among the Sarkis of Kano. He was the first to give a eunuch the title of Wombai (the eunuch was called Damu). He also gave to a eunuch called Dabba the title of Sarkin Dawaki. He gave to another eunuch called Mabaiyi the title of Dagachi.

He determined on an expedition against Katsina. He said to the Alkali Mohamma the son of Tanko, the son of Jibril, the son of Mugumi: "Find me an Alkali to take with me to war with Katsina. When I go to the war, I shall not return alive unless I beat the Katsinawa." The Alkali gave him his pupil Musa, whose mother's name was Gero. The Sarki made Musa Alkali. Now when he came to Katsina, the men of Katsina came out to fight. The armies met at Kankia and fought there. The Katsinawa won because they were superior in numbers. The Kanawa ran away—deserting their Sarki—with the exception of San Turaki Mainya Narai, San Turaki Kuka Zuga and Dan Dumpki. Hence the songs "Narai the wall: ready to answer any challenge;" "Zuga does not run away."

These returned home together with their Sarki and entered Kano with him. The Sarki was very grieved. His men said to him, "Lay aside your grief, next year we will defeat the Katsinawa, if Allah wills." But meantime his brothers were treacherously planning to kill him. San Turaki Narai heard of their plans, and told the Sarki, saying, "Do not go outside your house, you or your Liman, to-day, or you will be killed." So the Sarki remained in his house, while San Turaki acted as Sarki. When the conspirators came in the evening, they found San Turaki with his slaves in the mosque, and, thinking he was the Sarki, attacked him. He had with him nine of his own slaves, and eighteen of the Sarki's household. The nine slaves were killed. Twelve of the others were killed and six captured. The names of the six were Burimah, Jigo, Adam, Wukarka, Tukuki and Sarkin Wawayi. The new Sarki Mohamma Zaki intended to kill these six, but they prayed and begged him saying: "Spare us and we will be your slaves, we

are your grandchildren." So the Sarki spared them, but each of them chose a task as a price of their lives.

San Turaki Narai was buried in the mosque[1] in which he was killed. For this reason Mohamma Zaki made Aderki build Serikin Jarmai a house inside the Sarki's compound. The "zowre" of Turaki Mainya was also built near the mosque, as also Yan Sintali's house and the houses of Turaki Kuka and Mai-Shikashikai. The site of the mosque was changed. On account of this occurrence Turaki Mainya had the honour of acting for the Sarki, if he were absent, in the time of Mohamma Zaki, but afterwards the right lapsed. Shashere ruled nine years and four months and twenty-four days. Then he was deposed.

XXVII. MOHAMMA ZAKI, SON OF KISOKI.

A.H. 990–1027. A.D. 1582–1618.

The twenty-seventh Sarki was Mohamma Zaki, son of Kisoki. The name of his mother was Hausatu, the daughter of Tamma. When Mohamma became Sarki, Tamma came to live at Kano together with his men, the Kartukawa. In the time of Mohamma Zaki "Tchukana" and "Dirki"[2] were begun. The Sarki's men kept saying to him, "Sarkin Kano, if you leave the Katsinawa alone, they will become masters of all Kano and you will have nothing to rule but a little." The Sarki said, "I will conquer the Katsinawa if Allah wills." At this time the Sarkin Kworarafa came to attack Kano. The people of Kano left the city and went to Daura, with the result that the Kworarafawa ate up the whole country and Kano became very weak. The men of Katsina kept on harrying Kano. If it had not been for the sake of the mallams in Kano, they would have entered and destroyed the city. There was a great famine which lasted eleven years. The Sarki called all his men and mallams together and said, "I have called you together to take counsel with me. How are we to stay this calamity?" Shehu Abubakr the Maghrebine said: "If you wish to repel the men of Katsina, I will give you something to do it with, but if you do repel them, you will never return to Kano." The Sarki said, "I agree." He gave Shehu great wealth and the mallams many gifts. Shehu did as he promised to do. The Sarki left Kano on the 22nd day of Ramadan, and arrived beneath the walls of Katsina at daybreak on the day of the Salla. The men of Katsina came out to battle before the hour

[1] The mosque was not rebuilt till the time of Abdulahi Dan Dabo, a Fulani. The Turaki Mainya did not again have such prestige till the time of Mohammed Belo, who made his son Zacchari Turaki Mainya. History repeats itself.

[2] That is to say, the Koran covered with goat's skin. Afterwards cow hide was used for the purpose, as many as ten skins being used, and even forty in later times. In Alwali's time, the practice had gone to such a ridiculous length that he stopped it altogether. The people said, "If you stop this practice, God will bring evil fortune upon you." Alwali replied, "Dirki is nothing but the Koran: I swear I will open it and expose its contents." So he ordered young men to take axes and open "Dirki." They did so. Alwali found the Koran inside, and took it to his house. The people said, "You will be expelled from this land even as you have expelled the Koran from Dirki." Alwali was afterwards driven out of Kano.

of the feast. The battle took place at Guraji. The men of Kano defeated the men of Katsina. The men of Katsina dispersed and fled, and the Kanawa took much spoil. They took four hundred horses, and sixty suits of horse armour. No one knows the amount of the spoil or the number of the slain. The Sarki returned to Karayi, where he died. His captains in war were eight in number: Madawaki Shaduka, Makama Babba, Jarumai Kaiotau, Atuman, Yanka Shaida, Burdi Hako, Dawaki Marku and Butali. He ruled Kano thirty-seven years and five months.

XXVIII. MOHAMMA NAZAKI, SON OF ZAKI.

A.H. 1027–1032. A.D. 1618–1623.

The twenty-eighth Sarki was Mohamma Nazaki. His mother's name was Kursu. When he became Sarki he sent messengers to make peace with Katsina. Sarkin Katsina refused his terms and invaded Kano. The Kanawa came out, and a battle took place at Karayi, in which the Kanawa defeated the Katsinawa. They then returned to Kano. Next year the Sarkin Kano went to Kalam. He left the Wombai Giwa behind at Kano because he was sick. When the Wombai recovered he said, "What can I do to please the Sarki?" His men said, "Add to the city." He said, "Very well." So he built a wall from the Kofan Dogo to the Kofan Gadonkaia, and from the Kofan Dakawuyia to the Kofan Kabuga, and to the Kofan Kansakali. He spent an enormous amount of money on this improvement. Every morning he brought a thousand calabashes of food and fifty oxen for the workmen till the work was finished. Every man in Kano went to work. No man surpassed the Wombai in benevolence to Moslems and the poor. The day when the work was to be finished the Wombai Giwa distributed among the workmen a thousand "tobes." He slaughtered three hundred cows at the Kofan Kansakali and gave the mallams many presents. When the Sarkin Kano returned from war, the Wombai gave him a hundred riding horses. Each horse had a mail coat. The Sarki was very pleased. He said, "What shall I do for this man, to make his heart glad?" His men said, "Give him a town." So the Sarki gave him Karayi. Hence the song:

> "Elephant Lord of the town, Abdullah foe of the bull hippopotamus, whose chains for taking captive women are hoes and axes."

The Wombai left Kano and went to Karayi. Every day he fought the Katsinawa and took much spoil from them in war. He became master of a hundred mailed horsemen and a thousand horses. He was sung as "The elephant who reduces his neighbours to servitude." He became so mighty that it was feared he would revolt. Hence he was turned out of his office in the time of Kutumbi. Mohamma Nazaki ruled Kano five years and one month.

XXIX. KUTUMBI, SON OF MOHAMMA NAZAKI.

A.H. 1032–1058. A.D. 1623–1648.

The twenty-ninth Sarki was Kutumbi, the son of Mohamma Nazaki, otherwise called Mohamma Alwali. His mother's name was Dada. He was a great Sarki. He had a friend whose name was Kalina Atuman, to whom he entrusted great power. No one would believe the extent of his power except one who saw it. He ruled over Kano town and country until his power equalled that of the Sarki, while the Sarki was like his Wazir. This Kalina Atuman was in power for twelve years. Then he died. After his death one of his men, Dawaki Kwoshi, came to the front. He too became so powerful that he seemed likely to revolt. He went to a place called Baḳin Karre and was there for seven days. After this he went to Yankwosa, where he remained three days, and afterwards to Rimin Kwoshe, the Sarki's farm. All the chief men of the town flocked to his standard. He had been there nine days when the Sarki induced him to come back with fine words. Then he returned to Kano. He was celebrated in the song:

> "See your prophet, ye Princes! You looked for a black dog, and did not find it at the hearth stones. Dawaki can put to flight a host with a shield of lotus. Dawaki the son of the great Dayi, the boaster."

Dawaki was the son of Turaki Kuka Allandayi. Thus it is that if the Sarki is sung, no one may be mentioned but him.

During the time of Kutumbi the saying,

> "O God great and loving! The great man hath the spleen,"

originated, because of Allandayi's anger when the Ungwa Kofan Kabagga was taken from him. No man of that time in Kano had accumulated such vast wealth, and so many eunuchs and ornaments. Hence he was sung in the song, "Great God, light of the town, O star!"

Kutumbi was the father of Bako. No prince could compare with him. In everything, in doing good, or doing ill, in courage, anger, and generosity he was like a Sarki even while he was only a prince. He had six hundred horses and ninety mailed horsemen. He went to Kurmin Dan Ranko to war and took much spoil. When he returned to Kano he was given the title of Jarumai for this exploit. Afterwards he prayed to die and died, for fear of civil war after his father's death. In the time of Kutumbi, Sarkin Dawaki Magara went to war with Bauchi and on his return built a town at Ganjua and settled there. He sent to Kano two thousand slaves. Kutumbi was very angry about this. Next year he mounted his horse and went off to war there. The people paid him *Jizia*. Then he returned to Kano leaving there five hundred slaves. The place was called Ibdabu since the people were all the slaves of the Sarki. The next year Kutumbi went to war with Katsina. He was victorious, and took much spoil. He camped at Dugazawa for nine months, during which time no one could venture out of Katsina. From this siege comes the song: "Alwali shutter of the great gate, Kimbirmi, shutter of the great gate." Of Kutumbi's warriors the greatest

was Madawaki Kimbirni. Then came Makama Banki, Dan Maji Jartake, Jarmai Garaje, Berdi Kamoku, Goriba Babba, Dan Kanfache Zabarau, Dan Ataman Babakke, Gwoto, Kaderko, Dawaki Sun Kuche and Dan Maköo Makere (so called because he always fought with a *kere*). There were others beside, and they feared nothing but God. Kutumbi returned to Kano, and the next year went to fight with Gwombe, which he sacked. He was the first Sarki of Kano who collected the *Jizia* from the Fulani which is called *Jangali*. He collected a hundred cows from the Jafunawa, the chief clan of Fulani, seventy from the Baawa, sixty from Dindi Maji, fifty from the Danneji, and others too numerous to mention. When he had collected the cattle he said to his slave Ibo, "I make you Sarkin Shanu." Hence the latter was called "Ibo na Kutumbi." He said to Mandawali, "You are Sarkin Samri, because you have charge of all the youths among my slaves." He called the slaves Kirdua. He said to Gumki, "I make you Sarkin Dogare." He said to Buayi, "You are Sarkin Shamaki." This man was called Buayi because he was a "black sheep." His name was Agurmaji. Kutumbi turned the Sarkin Surdi out of his house, and told him he had appointed another to his office. Sarkin Surdi built a house for himself. Whenever Kutumbi went to war or to Salla, he was followed by a hundred spare horses. Forty drums were in front of him, and twenty-five trumpets, and fifty kettle-drums. He was the first Sarki to create a "Berde Kererria." He was always followed by a hundred eunuchs who were handsomely dressed and had gold and silver ornaments. He built a house at Gandu, and another at Tokarawa. In the latter he lived when he went to war, and waited there until his army had assembled before setting out. When he returned from war he encamped at Gandu, where he would spend the night. Kutumbi was a very mighty Sarki in Hausaland. He went to war with Katsina and encamped close to the western gate of the city.

The Katsinawa came out in the night and a battle took place before daybreak. The Katsina army surprised the Kanawa; the whole of the Kanawa ran away. A man called Kumaza poised his spear and smote at Kutumbi, but Dan Maji Zartaki rushed in and killed him. Hence the song, "Rafter of iron, stronger than 'seri' wood." Sarkin Kano mounted his horse and retreated together with the few men who were with him. The men of Katsina pursued the retreating Kanawa and harried them until they reached Yashi. As regards Sarkin Kano some people say he was killed in Katsina, others say that he died at Kano. The latter is the better account. In any case he died within three days of the battle. He ruled Kano twenty-six years.

XXX. AL HAJI, SON OF KUTUMBI.

A.H. 1058–1059. A.D. 1648–1649.

The thirtieth Sarki was Alhaji Dan Kutumbi. His mother's name was Fadima. He ruled Kano eight months and twenty-four days, then he was deposed—the reason, I do not remember. He went into the country to live at a place called Dan Zaki.

XXXI. SHEKKARAU, SON OF AL HAJI.

A.H. 1059–1061. A.D. 1649–1651.

The thirty-first Sarki was Shekkarau, the son of Alhaji and Fari. In his time peace was made between Kano and Katsina. The peacemakers were Shehu Ataman, Mallam Bawa and Liman Yandoiya. Shehu Ataman said: "In future, whoever is the aggressor between you shall never prevail, if Allah wills, till the day of Judgment." About this time Dan Tamma Maji went out with Sarkin Gesu Sulimanu to Godia. Shekkaro ruled one year and seven months and twenty-four days.

XXXII. KUKUNA, SON OF AL HAJI.

A.H. 1061–1062. A.D. 1651–1652.

The thirty-second Sarki was Mohamma Kukuna. His mother's name was Goro. After he became Sarki he ruled one year. The Madawaki Kuma turned him out, and gave the power to his sister Fasuma's son Soyaki.

XXXIII. SOYAKI, SON OF SHEKKARAU.

A.H. 1062. A.D. 1652.

Soyaki was the thirty-fourth Sarki. His mother was Fasuma. Kukuna fled to Zukzuk. Soyaki had been reigning three months when the chiefs of Kano met together and held a consultation about him. The chief of them were the Galadima Wari, the grandfather of Kofakani Dan Iya Babba, Makama Mukhtari and Sarkin Dawaki Gogori. They sent messengers secretly to Mohamma Kukuna, who at once set out for Gaiya. The Sarkin Gaiya joined him in his march to Kano. The Madawakin Kano heard of this, assembled the men of Kano, and told them the news. They said, "We hear." He said, "What do you propose?" They said, "Shall we not go out before they get close to the city." The Madawaki said, "Very well." A battle took place at Hotoro. The Kano men ran away and deserted the Madawaki Kuma. Kukuna attacked him with a spear. He feared to be killed, and tried to escape. Kukuna followed him. The Madawaki made for the Kofan Kawayi and shouted to the people to close the gate behind him, so that Mohamma Kukuna should not enter. Kukuna, however, got in before the gate was shut and reached the palace. He found the Sarki Soyaki at the Giddan Ma-Shikashikai, together with his eunuchs. So he seized the sword from the hand of Soyaki and cried, "Allahu, Akbar, You, Sarki of a day! Go out! If you do not go I will cut your head off." The Sarki went out. A house was built for him at Dukarawa, where he lived and died.

XXXIV. MOHAMMA KUKUNA (RESTORED).

A.H. 1062–1070. A.D. 1652–1660.

Mohamma Kukuna then entered the Giddan Rumfa and lived sixty days there. After this he arrested the Madawakin Kano. Then he assembled many maidens, put the Madawaki on a donkey, and handed it over to the maidens to drive round the town. They did as he commanded. The Madawaki died of chagrin. Kukuna drove away Fasuma, the wife of Shekkarau and mother of Soyaki, because of the grudge he bore her son. She built a house at Durumin Yer Madawaki. Next year Sarkin Kworarafa Adashu came to attack Kano. Sarki Kano went to Yan Magada, where he stayed seven days, and then to Auyo and Abewa, where he remained forty days. On his return to Kano he found that the Kworarafa had battered down the Kofan Kawayi. He waited seven days, then marched round the city on a Saturday, entered his house, and stayed there two days. On a Monday he went to the Kofan Kawayi and built it up. From the first of these episodes he was called "Gewayer Garu," from the second "Na chin Kassa." On the same Monday he called all the Marguzawa to the city to salute him. They remained twenty-one days, and played a game in which they beat each other's heads with iron. The Sarki gave them many gifts, and asked them who was their chief. On their saying it was Zanku, the Sarki said to him, "Next year come again, and let all your men come with their 'hauyias' on their shoulders." "If you do so, Zanku," said Kukana, "God willing, no Sarkin Kano will be driven out again." Afterwards he sent for the Liman Yandoiya, and after giving him many presents said, "I want you to give me a charm which will prevent any Sarki from being again driven out of Kano." The Liman said, "Very well, but you must increase your presents." Kukuna did so, and gave him silver and gold. The Liman gave him what he gave him. The Liman told Kukuna to bury one charm in the Turaki Mainya's house, another in the house of Turakin Kuka, and another in the "Treasury" of Kano; and he further added that a fire must be kept burning every day above the charms, and assured the Sarki that if his instructions were carried out no Sarki would ever be again deposed. Kukuna did so, and ruled eight years and seven months in addition to the year that is mentioned above. Then he was deposed.

XXXV. BAWA, SON OF MOHAMMA KUKUNA.

A.H. 1070–1081. A.D. 1660–1670.

The thirty-fifth Sarki was Bawa. His mother's name was Lamis. He was a learned, just, and good Sarki. In his time there was no war in Kano land, east and west, south and north. Goron Pugachi, which Abubakr Kado, the son of Mohamma Rimfa, had built for his sons, had fallen into ruins, so Bawa repaired it. Bawa fashioned the chair which is placed in the house of the great Turaki, that he might sit on it. He built Pugachin Kishi as a school. He had a friend

who was called Dan Mallam Ali Diko. This Diko received such honour that a house for him was built in the palace called Soron Diko—in such honour was he held. He and the Sarki were inseparable. They rode together even at the Salla or elsewhere, since they had been the closest of friends from the time before Bawa had become Sarki. They had studied together. Diko always said his morning prayers at the Sarki's house, and never returned home until after the evening prayer. In Bawa's time Abdulahi, a great student of the Koran, came to Kano with his friends. He had a wonderfully captivating voice when reading. He took a house near Diko's and preached after evening prayer. Diko asked, "Who is that man?" and was told it was Abdulahi, a stranger. The next morning Diko sent to Abdulahi, and when he came, took him to the Sarki and told him to read to the Sarki. So he read the appointed portion of the Koran. After the Sarki had listened he would not let him go away, but built him a house near to the gate of Turaki Mainya. He was wont to amuse the Sarki at night by reading. During Ramadan Abdulahi preached to the Sarki during the vigils. When Dan Lowan died the Sarki said to Abdulahi, "I make you Dan Lowan, and you will call to prayer." In Bawa's time there were many holy men. He ruled Kano ten years, four months and twenty days.

XXXVI. DADI, SON OF BAWA.

A.H. 1081–1114. A.D. 1670–1703.

The thirty-sixth Sarki was Dadi. His mother's name was Ka Iya Gari. He wished to enlarge the city of Kano, but Shehu Mohamma prevented him. The next year Sarkin Kworarafa came to fight with Kano. The Sarki wished to go out and fight him outside, but the chiefs of Kano demurred and he remained in his house. The Kworarafai entered Kano by the Kofan Gadon Kaia, slaughtered the men of Kano, and reached Bakinrua. The Galadima Kofakani said to the Sarkin Kano, who was in the Pugachin Kishi with his Jarumai: "Establish 'Tchibiri' at Toji, and 'Bundu' at Rimi Bundu." The Galadima said to the Sarki, "Rise up! The Kworarafai have destroyed the best part of your town and have killed many men! They have penetrated to the Kurmi, and will attack the 'palace.'" The Sarki mounted his horse and went out, and came to the Kofan Fada with the Galadima and eunuchs and Jarumai. There he met all the Kanawa. He went to Rimin Bundu, took the "Bundu" and gave it to Dan Durma Mazza Mazza, and thence hastened to Kofa Bai. He found the Kworarafa had come near the "Tchibiri," but everyone of them who came close died at once. The Sarkin Kworarafa told his people to take away the "Tchibiri." The Kworarafai tried to charge, but they failed to seize it. The Sarki Kano came to the "Tchibiri," and took it. On his right hand he had a hundred warriors, in front of him ninety-nine chiefs, all of them mallams, and on his left hand a hundred warriors. They were all slaughtered by the Kworarafai; only a few were left alive. Sarkin Kano fled to Daura. The Kworarafai followed him to Jelli and then returned. Of the

men who were killed in this battle the chief were Dan Janbori, Dan Barra, Sarkin Buzza, Sarkin Durra, Dan Tanadi, Bundu, Sarkin Zabro, Magagi Bugaji, Sarkin Marua, Dan Garadu, Dan Raguma Giwa, Magaji Butachi, Dan Koamna, Magagi Sheggi, Dan Gamaji, Magaji Gantururu, Dan Dagazo, Magagi Tuntu, Sarkin Maguri, Dan Gauji, Magagi Garogi, Dan Tankaro, Dan Kargagi, Magaji Karfassa, Dan Kutuntu, Dan Toro, Dan Zaki Mazawa, Dan Bambawri, Kioto and others—in all ninety-seven Sarkis. In the time of Dadi the Sarkin Gaiya revolted. His name was Farin Dussi, the father of Mariamma. He was three years without paying the Sarkin Kano *Jizia*. Then the Sarkin Kano enticed him to an interview and killed him, some say with a razor, some at "Baura." In consequence of this revolt Sarkin Dawaki Debba (called Kamna) went out and became Sarkin Aujera. The Sarki said to him, "I am making you Sarkin Aujera because I am afraid of Miga, Dussi and Gaiya revolting." Dadi ruled Kano thirty-three years and eight months.

XXXVII. MOHAMMA SHAREFA, SON OF DADI.

A.H. 1114–1143. A.D. 1703–1731.

The thirty-seventh Sarki was Mohamma Sharefa, son of Dadi. His mother's name was Marianma. She was the daughter of Sarkin Gaiya Farin-Dussi. In Sharefa's time, the men of Gaiya became very influential in Kano. Sharefa was a powerful Sarki. He introduced seven practices in Kano all of which were robbery, namely, Karo, Rinsua, Matafada, Yan Dawaki, Kuaru, Jizia of maidens on marriage, and Jizian Kasua Kurmi. He invented many other methods of extortion. Sharefa sent Wombai Debba to war. The Wombai left Kano for Kirru, and making war on it captured much spoil and many men. News came to Sharefa that the Wombai had sacked Kirru and that there was nothing in the town but ashes. Sharefa said nothing, but when the Wombai Debba returned to Kano asked him what he meant by such work. The Wombai said, "I like Kano," speaking in riddles. In Sharefa's time the Sarkin Jamfara, Yakubu Dan Mazura, came to make war on Kano. A battle was fought at Yergana in which the men of Jamfara defeated the men of Kano. The men of Kano fled and deserted the Sarki, who was left with Nasan Kanni, Kasheka Bugau, the Turaki Mainya Allah Nikimaiyi, Berdi Kereria Yashibka and Dogara Gateri. They all lost their heads. Sharefa said to them, "Does not a single one of you know the way back to Kano?" They said, "No." Nasan Kanni said, "I know the way to the city." The Sarki said to him, "Show me the road." So he showed the Sarki the road until they came to the Rimin Bugunsua. The Sarki entered the town and his house, and no one was allowed to see him, so great was his wrath. Nasan Kanni Bugau, Allah Nikimaiyi and Yashibka obtained great honour from the Sarki because of the fight at Yergana. After this the Sarki sent out Sarkin Gaiya Jan Hazo, and told him to put a wall round Gaiya. Walls were built, too, at Tarkai, Tsokkua, Gano, Dawaki and many other towns. When Bugau became Turaki

Kuka he sent messengers to Sarkin Yawuri to ask him for "Algaitas." The Sarkin Yawuri gave him ten Algaitas, and three "Kurra-Kurra." The messenger came with them to Turaki Bugau. Bugau kept them three months, and sent them to the Maidaki Marianma, since she was a great personage. There was no woman like her in the seven Hausa states. In Sharefa's time cowries first came to Hausaland. The Sarki was a mighty warrior. Among his captains were Sarkin Dawaki Sodi, Dan Iya Maji Kudu, Dan Iya Mallam Shadu, Sarkin Jarumai, Mallam Bawa, Sarkin Jarumai Akwuria, Dan Iya Dashina, Sarkin Jarumai Ibrahim, Limanin Beradai Dodo, Berde Ba Kuddu, Sarkin Jarumai Abdullah, Galadima Kofa-Kanni. These all fought under Dadi. There were also Maidawaki Magani, Dan Sudu Durraman, Ali Uban Dan Kurkuti, Yahaya Uban Dan Maji Babba, Sarkin Damargu Gabo, Sarkin Fulani Bebeji Abdua, Sarkin Fulani Dania, Sarkin Fulani Bugai Beriss, Sarkin Gaiya Alwali, Sarkin Fulani Sankara Dubai, Berde Alhaji, Madawakin Gawo Bajiddah and others. When they went to war they never ran away, but always were victorious, even though the Sarki were not present. Sharefa ruled Kano twenty-eight years and ten months.

XXXVIII. KUMBARI, SON OF SHAREFA.

A.H. 1143–1156. A.D. 1731–1743.

The thirty-eighth Sarki was Mohamma Kumbari, the son of Sharefa and Duki. He was a liberal Sarki but quick to anger. His counsellors liked him, but the common people hated him. In his time there was fierce war between Kano and Gobir.

The name of Sarkin Gobir was Sobah. If the Gobirawa defeated the Kanawa one day, the Kanawa defeated them the next. This state of affairs continued for a long time. In Kumbari's time Sarkin Bornu May-Ali came to Kano to war. He encamped at Faggi for three nights without a battle being fought, since Shehu Tahiru and Shehu Bunduu prevented it. He returned to Bornu. Kumbari went to war with Dussi in the time of Sarkin Dussi Makuri and very nearly entered the town through the fierceness of his attack, but his advisers prevented him entering the town, saying to him, "Sarkin Kano, you have won the day, go home." He listened to their advice and went home. In the Dussi war Sarkin Aujera Bugau was killed. Kumbari returned to Kano. In his time shields were first brought from Nupe, which was then ruled over by Sarkin Nupe Jibrila. Guns were also brought. Mohamma Kumbari was active in collecting *Jizia* from the Kasua Kurmi, so that the market was nearly killed. The next year he collected *Jizia* in Kano and made even the mallams pay. There was so much disturbance that the Arabs left the town and went back to Katsina, and most of the poorer people in the town fled to the country.

Turaki Kuka Tunku said to Kumbari, "Sarki, if you do not let this *Jizia* alone, there will be no one left in the town but yourself and your servants." The Sarki listened to him. Kumbari made war against Kuddu Baudam. When he

went out to Zanga he was advised to make haste, for it was said, "If you do not make haste you will not conquer Baudam, because there are many warriors in the town." He said, "I hear." When he came near the gate of the town, an arrow was launched at him and a battle ensued between the Kanawa and Kudawa. When Kumbari saw that the battle was growing hot, he took a spear in his hand and attacked the wall of the town. The men of Kano followed him under a shower of arrows. The Kudawa slaughtered the Kanawa, and the Kanawa slaughtered the Kudawa, until Kumbari reached the gate of the town. Had not the gate been closed he would have got in. The Kudawa ran away in a body to their houses. Kumbari camped at Zongon Dan Ingarma. Afterwards terms of peace were arranged and Kumbari returned to Kano. His captains were fifty-two men who knew no fear: Sarkin Jarumai Aidajika, Berde Duguru, Dan Iya Tefiwa, Dan Iya Gajigi, Sarkin Majia Dandawa, Dan Tama Dan Arkaya, the Maji Yakufawa called Kunkuru Dageza, Dan Berde Madawaki Yabo, Galadima Dan Faramu, Sarkin Dawaki Mallam Bawa, Berde Sokana, Sarkin Jarumai Akallam, Jarmai Tugwai, Dan Hamuda, Dan Tankari Hamadi, Dan Tara-Tara Abbas, Sarkin Gano Bako, Dandama Kanwa Chilaya, Makama Chikudu, Lifidi Sayadu, Dan Maskara, Maidawaki Berde Dan Ashifu, Sarkin Damargu Baji Dan Gaba, Sarkin Bebeji Zakkari, Dan Bugai Chusa, Dan Beras, Sarkin Ringim Ada, Al-Berka, Sarkin Tsekkia Atoro, Dan Farzaki, Sarkin Burku Muni, Dan Samayila Chikewa, Jarumai Raadu, Gashin Baki Tsofo, Makarma Della, Dan Ajibiji Kakwoshi Magani, Dan Shanono, Dan Ali Duka, and others. Each one of them had no fear in fight, but Kumbari thought there was no one equal to himself. He ruled thirteen years.

XXXIX. ALHAJI KABE, SON OF KUMBARI.

A.H. 1156–1166. A.D. 1743–1753.

The thirty-ninth Sarki was Alhaji Kabe. His mother's name was Zama. She was also called Zenabu. He was a Sarki of many wars and terrible. From the time he obtained the kingdom he did not remain five months in his house without going to war or sending out his Sarkis to fight. Sarkin Gobir sent to try and make peace with him but Kabe refused. He sent to Sarkin Gobir Barbari, saying, "I have a cap to fit anyone's head." Barbari said, "I hear." The next year Barbari came to Kano to war. A battle ensued between him and Kabe at Dami. The Kanawa ran away, because of the "magic" which Barbari possessed. The Kanawa left Kabe alone with the Dogarai and Kwinkele, and Sarkin Dawaki Kinku Ammi and Turaki Kuka Yadoka. The whole army of the Gobirawa came charging up to the Sarkin Kano. The Kwinkele withstood them until their chief was killed. Then Yakidoka said, "Sarkin Kano, all the men of Kano have run away and left you alone with your slaves." Sarkin Kano returned to the town together with his slaves (some say with the Kanawa) sick at heart. The Gobirawa went on slaughtering the Kanawa, and the Kanawa slaughtered the Gobirawa in

frequent wars until Kabe's death. No record can be kept of the fighting between them in Kabe's time or the number of wars in which Kabe engaged or which he ordered. No one gave presents to the mallams so much as Kabe did, for he sought a reward in the next world. There was no man of his age who was so ruthless in killing men as Kabe. There was no peace in Kano, only trouble after trouble what with the war with Gobir and other wars. Sarikin Dawaki Ali, Jarumai Tugwai Dan Bajidda, Sarkin Jarumai Salihu, Lifidi Abubakr, Berdi Bakana, Makama Bagwinki, Lifidi Sawani, Ganda Faria, Magajin Kan-Kama, Doro, Lifidi Jedi Kwoma, Makama Almajir, Galadima Guraguri, Galadima Jarmawa Ali, Berde-Kunda, Burde Bakudu, Sarkin Damargu Buzu Dan Barji, Sarkin Ringim Kwirudu, Burdi Shahu, and others, were Kumbari's warriors, and fought for Kabe. Kabe ruled nine years and seven months.

XL. YAJI, SON OF DADI.

A.H. 1166–1182. A.D. 1753–1768.

The fortieth Sarki was Mohamma Yaji, son of Dadi. His mother's name was Mariamma. He was a just and good Sarki, and a man of mild disposition. On account of this his wives called him "Mallam Lafia." In his time there was no trouble.

He ruled in harmony with his brothers, the sons of Bauwo. There was no difficulty either with his Sarkis or his chief slaves, or his household, or any one. Many men came and settled in Kano-land in his reign. He reigned fifteen years and ten months.

XLI. BABBA ZAKI, SON OF YAJI.

A.H. 1182–1190. A.D. 1768–1776.

The forty-first Sarki was the son of Yaji, called Babba Zaki. His mother's name was Yerduna. He was an able Sarki, of great strength, renowned for his memory and eloquence. He was called Babba Zaki. He made war on Birnin Auyau in the time of Sarki Abubakr. If it had not been for Madawaki Kano Dandawa, Sarkin Gaiya Gajigi and Sarkin Jafun Furtumi, the Kanawa would have entered the city of Auyau and destroyed the town. Yaji built a house at Takai and almost lived there, but the court refused to live there. He made war on Burumburum, and took the town by assault, capturing many of the inhabitants and cutting the throats of some, whilst the others fled. He curbed the power of the Sarkis and head slaves and plundered them every day. He forced them to give presents under compulsion, and to go to war unwillingly. Hence he was called "Jan Rano, well named the disturber of elephants." In war he forced them to fight against their judgment. He was the first Sarki who had a guard of musketeers at Kano, a practice which has obtained ever since. He imitated the Arabs of Kano in almost everything. His war captains were five:—Sarkin

Sankara Nagerki, Sarkin Bebeji Dembo, Sarkin Majia Kimfirmi Makama Bobawa, Sarkin Jarumai Achukur, Sarkin Dawaki Maina. The great men in his time were forty-two:—Dawaki Tokara, Bawa, Madawaki Dundurusu, Lifidi Gabjin, Galadiman Shamaki Alwali, Tunku, Yakufu, Berka Wuta, Bagarami, Berka. These were all slaves. Among the mallams were: Alkali Abbas, Alkali Makam, Limanin Kano Aburauf and his sons, Abubukr Dan Mallam Bohari from Yandoto, and Husaini from Tarkai. The great men among the Arabs were: Sherif Hassan, Hajariki, Sherif Hamad, Sherif Dahab, and others. Among the Sarki's sons were: Dan Iya, Mallam Osuman, Choka, Daka and Nafata. Among his eunuchs were: Sarkin Dawaki Muradi, Turaki Mainya Munaga Allah, Turaki Kuka Kasan Allah, Turaki Kuka Ka-nem-Kiwo, Gwoninka Jephar, who was of the same people as Sherif Hassan and others. The chief of these were Dan Maji Babba, Hangaza and Dan Zanko Jibril. In all there were forty-two.

Each of them thought he was greater than the rest in the Sarki's eyes. Thus the Sarki planned. Babban Zaki ruled Kano eight years.

XLII. DAUDA ABASAMA, SON OF YAJI.

A.H. 1190–1195. A.D. 1776 1781.

The forty-second Sarki was Dauda Abasama, the son of Yaji. His mother's name was Baiwa. He was a Sarki of good character, reticent and wise, generous and popular. He was prudent and at the same time warlike, and kept his word. He had a mind above favouritism or revenge, and took the Galadima Makama's advice in everything. The Galadima Makama was like a Sarki, while Dauda was like his Wazir, because he was so forbearing. There was no war in his reign or rebellion. He ruled Kano five years and four months.

XLIII. MOHAMMA ALWALI, SON OF YAJI.

A.H. 1195–1222. A.D. 1781–1807.

The forty-third Sarki was Mohamma Alwali, son of Yaji. His mother's name was Baiwa. As soon as he became Sarki he collected stores of "Gero" and "Dawa" in case of war and famine. Nevertheless famine overtook him. His chiefs said to him, "Sarkin Kano, why do you refuse to give cattle to Dirki?" The Sarki said, "I cannot give you forty cattle for Dirki." They said, "What prevents you? If any Sarkin Kano does not allow us cattle for Dirki, we fear that he will come to some ill." Alwali was very angry and sent young men to beat "Dirki" with axes until that which was inside the skins came out. They found a beautiful Koran inside Dirki. Alwali said, "Is this Dirki?" They said, "Who does not know Dirki? Behold here is Dirki." Dirki is nothing but the Koran. In Alwali's time the Fulani conquered the seven Hausa States on the plea of reviving the Muhammadan religion. The Fulani attacked Alwali and drove him from Kano, whence he fled to Zaria. The men of Zaria said, "Why have you left

Kano?" He said, "The same cause which drove me out of Kano will probably drive you out of Zaria." He said, "I saw the truth with my eyes, I left because I was afraid of my life, not to save my wives and property." The men of Zaria drove him out with curses. So he fled to Rano, but the Fulani followed him to Burum-Burum and killed him there. He ruled Kano twenty-seven years, three of which were spent in fighting the Fulani.

XLIV. SULIMANU, SON OF ABAHAMA.

A.H. 1222–1235. A.D. 1807–1819.

The forty-fourth Sarki was Sulimanu, son of Abahama, a Fulani. His mother's name was Adama Modi. When he became Sarkin Kano, the Fulani prevented him from entering the palace. He went into the house of Sarkin Dawaki's mother. One of the remaining Kanawa said to Sulimanu, "If you do not enter the Giddan Rimfa, you will not really be the Sarki of city and country." When Sulimanu heard this he called the chief Fulani, but they refused to answer his summons, and said, "We will not come to you. You must come to us, though you be the Sarki. If you will come to Mallam Jibbrim's house we will assemble there." Sulimanu went to Jibbrim's house and called them there. When they had assembled, he asked them and said, "Why do you prevent me entering the Giddan Rimfa?" Mallam Jibbrim said, "If we enter the Habe's houses and we beget children, they will be like these Habes and do like them." Sulimanu said nothing but set off to Shehu-Osuman Dan Hodio asking to be allowed to enter the Giddan Rimfa. Shehu Dan Hodio gave him a sword and a knife,[1] and gave him leave to enter the Giddan Rimfa, telling him to kill all who opposed him. He entered the house, and lived there. All the Kano towns submitted to him, except Faggam, which he attacked. He took many spoils there. On his way back to Kano the chiefs of the Fulani said to him, "If you leave Faggam alone, it will revolt." So he divided it into two, and returned home. In his time Dabo Dan Bazzo raised a revolt. He dared to look for a wife in Sokoto and was given one. Sarkin Kano said, "What do you mean by looking for a wife at Sokoto?" So Dabo was caught and bound. His relations the Danbazzawa, however, came by night and cut his bonds, and set him free. He ran to Sokoto with Sulimanu following him. At Sokoto they both went before Dan Hodio. Dabo Dan Bazzo said, "I do not wish to marry your daughters, but I wish for a reconciliation between myself and your Sarki Sulimanu." So a reconciliation was made and they returned to Kano. Sulimanu sent the Galadima Ibrahima to Zaria to make war. Ibrahima conquered Zaria and took many spoils. He returned to Kano. Sulimanu was angry because of the Galadima's success, and had sinister designs against him when he died himself without having an opportunity of carrying them out. He ruled thirteen years.

[1] A flag was also given him as well as a knife and sword. He did not go to Sokoto, but sent a message. Had he gone himself, he would never have regained his position.

XLV. IBRAHIM DABO, SON OF MOHAMMADU.

A.H. 1235–1262. A.D. 1819–1246.

The forty-fifth Sarki was the pious and learned Ibrahim Dabo, son of Mohammadu, protector of the orphan and the poor, a mighty conqueror—a Fulani

His mother's name was Halimatu. When he became Sarki he entered the Giddan Rimfa. Dabo made Sani Galadima. He, however, immediately tried to raise a revolt and incite all the towns to disaffection. The country Sarkis assembled and became "Tawayi," from Ngogu to Damberta, from Jirima to Sankara, and from Dussi to Birnin Kudu and Karayi. Dabo said, "I will conquer them, if Allah wills." He entered his house and remained there forty days praying to Allah for victory. Allah heard his prayers. He went out to hasten his preparations for war, and made a camp on Dalla Hill. Because of this he got the name of "The man who encamped on Dalla." He spent many days on Dalla,[1] and then returned home. He sent Sarkin Dawaki Manu Maituta to fight with Karayi. When the Sarkin Dawaki reached Karayi he sacked the town and returned to Dabo. Dabo said, "Praise be to God," and prepared himself to go out to war. He went to Jirima and sacked that town and afterwards sacked Gasokoli and Jijita. Hence he was known as "Dabo, the sacker of towns." After he returned home he kept on sending out men to raid towns. He went in person to attack Dan Tunku and found him at Yan Yahiya. They fought. The Yerimawa ran away, and deserted Dan Tunku, who fled to Damberta, and thence, with Dabo following him, to Kazauri. When the Sarki reached the Koremma in pursuit he stopped, turned round again, and went back to Damberta, where he wrecked Dan Tunku's house. Dabo then returned home. Dabo was celebrated in the song:—

> "The sacker of towns has come: Kano is your land, Bull Elephant, Dabo, sacker of towns."

When he went to war the trumpets played:—

> "The sacker of towns is mounting."

He made war on Birnin Sankara and Birnin Rano, took the town of Rano, and lived in the house of Sarkin Rano. After this exploit he shaved his head. He never shaved his head except he sacked a town. When the Kano towns saw that Dabo would not leave any town unconquered, they all submitted to him, and his power exceeded all other Sarkis. He had a friend whose name was Ango. When the Galadima Sani died, he made Ango Galadima, and as Galadima the latter reached great power through his pleasant manner and his persuasiveness. In Dabo's time there was no foreign war and people had food in plenty. Dabo conquered and spoiled Yasko. He had many war captains, a few among whom may be mentioned as: Berde, Kano Buggali, Sarkin Dawaki Manu, Sarkin Jarumai Dumma, Sulimanu Gerkwarn Karifi (he it was who killed Tunari, the son of Sarkin Sankara), Juli Kuda, Lifidi, Maidawakin Gawo and many others. These warriors of Dabo's time had no fear in war. When Dabo mounted to go to war no such dust was

[1] "Perhaps forty, I am not sure."

ever seen, so many were his horses. The dust was like the Harmattan. Dabo was called "Majeka Hazo." His was a wonderful and brilliant reign, but we will not say any more for fear of "Balazi."

He ruled Kano twenty-seven years and three months and nine days, his reign ending on the ninth of Safar.

XLVI. OSUMANU, SON OF DABO.

A.H. 1262–1272. A.D. 1846–1855.

The forty-sixth Sarki was Osumanu, son of Dabo. His mother was Shekara. The first act of his reign was to build a house for Shekara at Tafassa with a big room the like of which was never seen before. Shekara was called "the mistress of the big room." Osumanu was a learned and good man and generous. He was called "The skin of cold water." The Galadima Abdulahi obtained in his time almost as much power as the Sarki, while Osuman was like his Waziri. There was no war in his time except with Hadeijia. He built a house at Gogel and had a farm there. In his time mallams obtained great honour—among them Mallam Ba-Abseni, and others. In Osumanu's time Sarkin Dussi Bello revolted, but the Sarki enticed him to Kano and deposed him. Highway robbers were very numerous because Osuman was so good-tempered and merciful. He could not bring himself to cut a man's hand off nor, because he was so pitiful, could he cut a robber's throat. He was called "Jatau rabba kaya." There was no Sarki like him for generosity.

He ruled Kano nine years and ten months.

XLVII. ABDULAHI, SON OF DABO.

A.H. 1272–1300. A.D. 1855–1883.

The forty-seventh Sarki was Abdulahi, son of Dabo. His mother's name was Shekkara. When he became Sarki he set to work to kill all the robbers and cut off the hands of the thieves. He was called "Abdu Sarkin Yenka" because he was a strong-minded Sarki, ruthless, and victorious. He was quick to depose chiefs, but kept his word to his friends. He never stayed long in one place but went from town to town. In his time there was a very great famine, and the quarrel with Umbatu grew big from small beginnings. The Sarkin Kano was eager to make war upon Umbatu. His first move was to attack Kuluki. Dan Iya Lowal of Kano died at Kuluki, whereupon the Sarki returned home himself, but sent Abdulahi Sarkin Dawaki Dan Ladan and his son Tafida to war in Zaria country. They went to Zaria together. This was in the time of Sarkin Zaria Abdulahi Dan Hamada. When they returned from Zaria it was not long before Dan Boskori made a descent upon Gworzo. The Sarkin Kano sent Sarkin Dawaki on ahead and followed himself personally to meet Dan Boskori Sarkin Maradi, west of Gworzo. A battle took place. The Kanawa ran away, deserting the Sarkin Dawaki Dan Ladan. Dan Boskori killed him. The Kanawa returned home in ones and twos.

The Sarkin Kano was very angry. He gave orders that a house was to be built at Nassarawa for him to live in during the hot season; he also built a house at Tarkai for the war with Umbatu. He had a house at Keffin Bako where he lived almost two years because of Dan Maji the neighbour of Umbatu. He fought with Warji after the war with Kuluki, and took enormous spoil. No one knows the amount of the spoil that was taken at a town called Sir. The corpses of Warjawa, slaughtered round their camp, were about four hundred. The Sarki returned home. After a short time, the Sarki attacked Warji again, and once more took many spoils. Kano was filled with slaves. Abdulahi went to Sokoto, leaving his son Yusufu at Tarkai. While he was there Dan Maji came to attack Yusufu. A battle was fought at Dubaiya. The Kanawa fled and deserted Yusufu. Many men were slain and captured. After this Yusufu was made Galadima Kano, and hence acquired much power. Abdulahi sent him to Dal from Tarkai to capture Haruna, the son of Dan Maji. Yusufu met Haruna at Jambo, and a battle took place. The Umbatawa ran away, deserting Haruna. Yusufu killed and took many men. It is said that about seven hundred were killed. Afterwards Yusufu tried to stir up rebellion and was deprived of his office and had to remain in chagrin and poverty till he was penniless. Abdulahi turned the Sarkin Dawaki Abdu out of his office and with him Makama Gadodamasu, Chiroma Diko, Dan Iya Alabirra, Galadima Abdul-Kadiri, and Galadima Yusufu. Abdulahi killed the Alkali Kano Ahmedu Rufaiyi, and degraded Maäji Sulimanu, Maji Gajere, and San Kurmi Musa. He deprived Mallam Dogo of his office of Waziri. The number of people that he turned out of office was countless. Hence the song—

"Son of Ibrahim, a pick-axe to physic hard ground."

He sacked many towns. He made a new gate, the Kofan Fada. In his father's time it had been built up. He rebuilt the mosque and house of the Turaki Mainya early in his reign. They had been in ruins for many years. In his time Soron Giwa was built. At Woso he met Dan Maji in war. It was towards evening when the battle was fought. Dan Maji retreated. If it had not been that the light failed he would have been killed. Abdulahi attacked Betu, but failed. Abdulahi used to have guns fired off when he mounted his horse, till it became a custom. His chief men were:—Sarkin Yaki, called Mallam Dogo, Mallam Isiaka, Mallam Garuba, Sarkin Gaiya, Mallam Abdu Ba-Danneji, Alhaji Nufu, his friend Mallam Masu, Tefida his son, Shamaki Naamu, Manassara, Jekada of Gerko, and Dan Tabshi. Mallam Ibrahim was his scribe, and was made Galadima. This man was afterwards turned out of office in the time of Mohammed Belo. Others were the Alkali Zengi and Alkali Sulimanu. Abdulahi went to Zaria and sat down at Afira, and then at Zungonaiya. The Madawaki Ali of Zaria was in revolt against Sarkin Zaria. The Sarkin Kano made peace between them and returned home. In Abdulahi's time Salemma Berka became great. In the time of Mohammed Belo this man revolted and was

degraded. In Abdulahi's time, too, the palace slaves became so great that they were like free men. They all rebelled in Mohammed Belo's time, but Allah helped Mohammed Belo to quell the rebellion. There were many great captains of war in Abdulahi's time, men without fear—so many of them that they could not be enumerated, but a few may be mentioned: Sarkin Yaki, Mallam Dogo and his son Düti, Jarumai Musa, Sarkin Bebeji Abubakr, Sarkin Rano Ali, Sarkin Gesu Osuman, Sarkin Ajura Jibbr. In this reign Sarkin Damagaram Babba came as far as Jirima and sacked Garun Allah. Sarkin Gummel Abdu Jatau came to Pogolawa to attack it. Sarkin Maradi Dan Boskori came to Katsina. Abdulahi went to meet him. They met at Kusada, but did not fight. For this reason the meeting was called "Algish Bigish Zuru Yakin Zuru," for they looked at each other and went back. There was also a fight between Barafia Sarkin Maradi and Sarkin Kano at Bichi. Barafia ran away and Abdulahi took all the spoils. It is not known how many men were killed and slain. We do not know much of what Abdulahi did in the early part of his reign. He ruled Kano twenty-seven years and eight days, and died at Karofi on his way to Sokoto.

XLVIII. MOHAMMED BELO, SON OF IBRAHIM DABO.

A.H. 1300–1310. A.D. 1883–1892.

The forty-eighth Sarki was Mohammed Belo, son of Ibrahim Dabo. His mother was Shekkara. He was a very generous Sarki. He said to his friend Sarkin Fada Dan Gatuma, "You are Waziri Kano; I place in your hands the management of Kano." The Sarkin Fada was unrivalled as a settler of disputes. Belo was like his Wazir, and Sarkin Fada was like Sarki. When Sarki Fada died, Mohammed Belo stretched out his legs because he saw that now he must become Sarki in earnest. He expelled the Galadima Ibrahim from his office and banished him to Funkui in Zaria, whence his name, "Galadima na Funkui." Belo gave the post of Galadima to his son Tukr, and his son Zakari was made San Turaki. Another son Abubakr he made Chiroma in place of Chiroma Musa. . . .

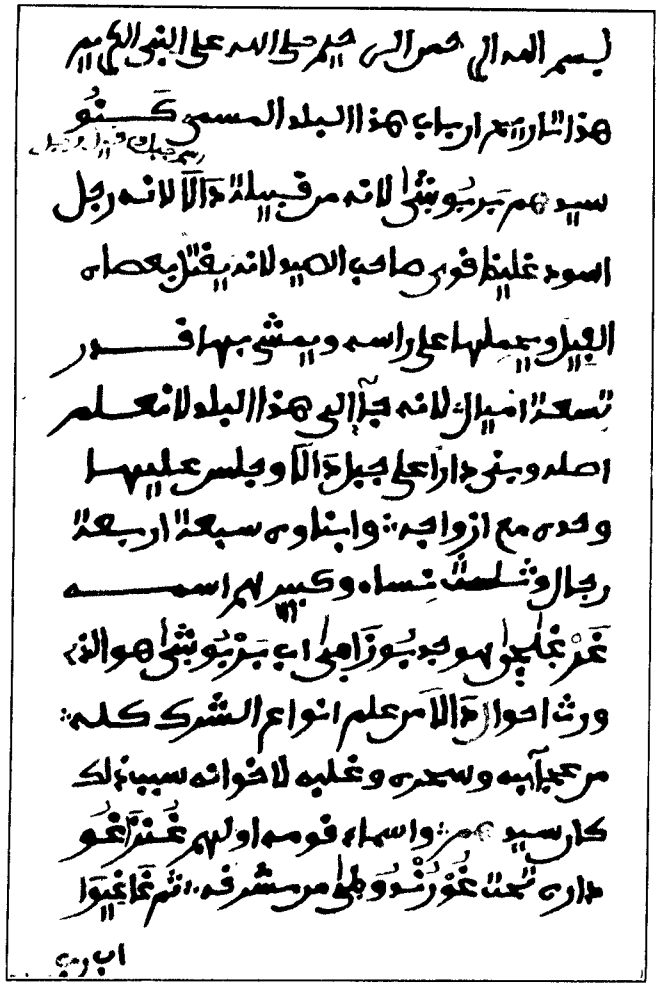

FIG. 1.—PAGE OF THE KANO CHRONICLE.

FIG. 2.—SACRED CROCODILE, SAID TO BE 200 YEARS OLD, AT THE VILLAGE OF MUSAWA, KATSINA. THE ANIMAL HAS A RING FIXED THROUGH ITS NOSE. (p. 80.)

THE KANO CHRONICLE.

FIG. 1.

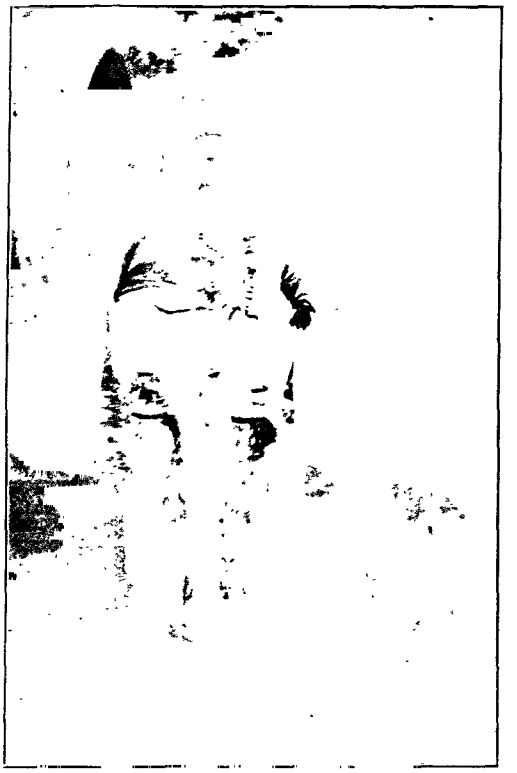

FIG. 2.

BAURA PLAYER: NOTE THE TIP OF THE SPEAR, AND THE IRON RINGS ON HIS WRISTS. (pp. 87, 89.)

FIG. 3.—TOMB OF ONE OF THE EARLY KINGS OF KATSINA, SIMILAR TO THOSE DESCRIBED BY EL BEKRI AT GHANA. (p. 61.)

THE KANO CHRONICLE.

CONTRIBUTIONS TO EGYPTIAN ANTHROPOLOGY.

By Charles S. Myers.

V. GENERAL CONCLUSIONS.

We are now in a position to bring together the various results that have come to light in the course of these contributions, and to study their relation to one another and to the broad problem of Egyptian ethnology.

We have seen[1] that in modern Egypt the Moslem population takes on increasingly negroid characters as we proceed from the Mediterranean towards the First Cataract. Is this the result of more frequent intermarriage with the inhabitants of the Sudan?

In preparing to answer this question, we cannot neglect the fact that similar differences in degree of negroid characters appear to exist among the Copts of Lower and Upper Egypt, who are known to have remained free from Sudanese admixture during the past 1,300 years. If, then, an increasing amount of Sudanese admixture be the cause of the increasing negroid character of Upper as compared with Lower Egypt, it is clear that the intermarriage must have occurred at a very remote date, and that its results have been perpetuated since then.

But we may reasonably doubt whether so long a persistence of the effects of intermarriage is possible. From many different quarters we have indications that ultimately an aboriginal people absorbs and exterminates the physical characters of those who come to settle among them. In the third of these contributions[2] we saw that the repeated migrations of Greeks into the Fayum, beginning about 2,500 years ago, and ending soon after the start of the Christian Era, have left no trace of an effect to-day on the physique of the modern dwellers in this oasis. The latter have a nasal index which is distinctly higher than that which occurs among the northern provinces of the Delta, and almost identical with the index found in the Nile Valley in the same latitude as the Fayum.

There are many writers on Egyptian ethnology who believe that from time immemorial there have always been at least two races in Egypt, the one Caucasian (Mediterranean or Libyan), the other negroid, and that to this day both these races are present throughout Egypt, although prevalent in different degrees in different regions. Now we may conceivably look for support of this hypothesis in the following directions.

[1] *Journal Anthrop. Inst.*, 1906, vol. xxxvi, pp. 237–261.

[2] *Ibid.*, pp. 261–263. Similar conclusions were reached in the second of these contributions, in our comparison of the "Prehistoric" and Modern Populations of Egypt (*ibid.*, 1905, vol. xxxv, pp. 80–91).

We should expect that the inhabitants of Middle Egypt, where, presumably, the two races are present in equal intensity, would tend to show greater variability than those of extreme Upper or of extreme Lower Egypt, in which one of the two races presumably predominates to the relative exclusion of the other. But, as a fact, we have found no such tendency whatever. There is no evidence that the peoples of different parts of Egypt differ in homogeneity. Here, however, we have to take into account our discovery[1] that the introduction of a negroid element, in not too great amount, although it may effect the average measurement, need not appreciably disturb the variability of the Egyptian. We have seen that the modern Moslems are more negroid, yet are not less homogeneous than the modern Copts, and that the mixed Moslems are more negroid, yet are not less homogeneous than the unmixed Moslems. But in each of these cases such negroid admixture is slight. We can only conclude that if anthropometric evidence is to be adduced for the presence of a Caucasian and a negroid race in the Egyptian population, these races must each exist in quite appreciable quantities.

Secondly, we should expect that the frequency curves for the provinces of Upper and Lower Egypt would have a markedly asymmetrical form, the one showing a skew in one direction, the other in the other, while the frequency curves for the provinces of Middle Egypt would approach the symmetrical form. Again, by reference to the curves,[2] we find nothing of the kind.

In the third place we should expect that a series of distribution curves of the same measurement would show identical peaks in different provinces of Egypt if two races really existed. This identity of peaks we have in general failed to find. Where it occurs we have shown[3] that it cannot possibly be held to indicate quality of race, inasmuch as the peaks lie far too close (*i.e.*, are too nearly of identical value) to have arisen from the inclusion of two types and their fluctuations within a single curve. There is, indeed, little reason to doubt that if only measurements could be taken in adequate number, the various provinces would each give smooth, peakless distribution curves, having, in respect of negroid characters, different averages dependent on the latitude of the provinces, but having like variability.[4]

I contend, then, that from the anthropometric standpoint, every province contains a homogeneous population, notwithstanding that the mean measurements vary in degree of negroidness according to province. On each side of the variable mean there are fluctuations to like extents in different provinces. There is no anthropometric evidence of duality of race. I consider that in spite of the various infiltrations of foreign blood in the past, modern Egypt contains a homogeneous population, which gradually shifts its average character as we proceed southwards from the shores of the Mediterranean to Nubia beyond the First Cataract. The

[1] *Journal Anthrop. Inst.*, 1906, vol. xxxvi, p. 270.

[2] *Ibid.*, pp. 247–253.

[3] *Ibid.*, pp. 254, 255.

[4] It is highly probable that the peaked curves, on which Professor Petrie unhappily bases his racial analyses of Egypt (The Huxley Lecture for 1906, published in this *Journal*, vol. xxxvi, pp. 225–231, and Plates XXVIII, XXIX), are sheer accidents, due to the examination of an insufficient number of measurements. (*Cf. Biometrika*, 1902, vol. i, p. 441, *et seq.*)

transition with which we may meet in such a travel is certainly not one from Egyptian to Sudanese. What transition there is, is from the fairer Mediterranean to the more swarthy Nubian population—a very different matter. The effects of Sudanese admixture in Egypt and Nubia are almost as patent as they would be in England. At the present day, as we have seen,[1] there is probably more Sudanese admixture in Lower than in Upper Egypt.

A side issue may be here considered. What degree of correlation obtains between the various negroid characters within given individuals? To what extent in Egypt does a broader face, for example, vary concurrently with a broader nose, or do thicker lips vary with a broader nose among the individuals of a given province?

To answer this question satisfactorily, I have determined the coefficient of correlation between nasal and facial indices for the fifty-three inhabitants of the province of Kena, and I find it to be −0·467. It will be remembered that a coefficient of correlation can vary between the limits of +1 and −1, the former indicating perfect correlation in the same direction, the latter indicating perfect correlation in the inverse direction, while a coefficient of zero indicates the total absence of correlation between the factors in question. The value −0·467 thus demonstrates a very distinct degree of inverse correlation between nasal and facial indices. It shows that broadness of face within the community tends to increase concurrently with broadness of nose—inasmuch as a low facial index implies a relatively broad face and a high nasal index implies a relatively broad nose.

I have also endeavoured to investigate the correlation between thickness of lips and broadness of nose. I give below the nasal indices of those individuals of Minia and Assiut who had unusually thin or unusually thick lips. The correlation between thickness of lips and breadth of nose is obvious.

Thin lips.			*Thick lips.*
66·67	73·47	79·17	80·0
70·00	73·91	79·17	81·63
70·59	76·60	81·82	82·93
72·00	78·26	84·44	83·33
72·55	79·17	—	85·11
73·33	79·17	—	—

But to establish a correlation between features which are of negroid character is quite a different thing from demonstrating the existence of a negroid race. I need not again allude to the difficulties which prevent our acceptance of the latter thesis. On the other hand, the existence of a correlation between negroid characters is no obstacle to the acceptance of the view as to the ethnology of Egypt, which I am advancing in this paper. There is no reason why a homogeneous race, varying in its affinity to negroid and Caucasian features, should not show the correlations we have demonstrated. The conditions which, in the case of

[1] *Journal Anthrop. Inst.*, 1906, vol. xxxvi, p. 264.

given individuals, bring about a greater negroid tendency in one direction, would be expected *a priori* to induce a similar tendency in other directions.

But what are these conditions which have produced the varying degree of negroid tendency in different parts of Egypt? The Copts appear to exhibit this varying tendency according to the part of Egypt to which they belong, in spite of the fact that they have married solely among each other for the past 1,300 years. Two explanations of the cause of the variableness suggest themselves. The first makes it dependent on climate; the second, which we have already considered, makes it dependent on negroid admixture from the very earliest times.

I have come to the conclusion that the effect of climate is far the more likely and more important of these two factors. I regard the aboriginal people of Egypt as a homogeneous folk, showing an inclination to vary in two or three distinct directions, towards the Caucasian, the negroid, or even the mongoloid. The same tendency is also shown among the inhabitants of our own shores. There is hardly any test of negroid or mongoloid character (save that of colour), which would not embrace a small but a certain number of our most purely bred fellow countrymen.[1]

Europeans show accidental variations in the direction, for example, of obliquely directed axes of the eyes or of frizzly hair. Such accidental variations I assume to have been present in the aboriginal Egyptian population, and I hold that environment has been the selecting factor which has intensified and made permanent one or other of these accidental variations.

It would, of course, be absurd to say that a broader nose or a more projecting jaw is essential for a longer life in Upper as compared with Lower Egypt. But I believe that correlated with these physical features there are certain unknown physiological factors which make life easier to sustain in the dry, warm weather of Upper Egypt than in the wetter, cooler and more fertile regions near the Mediterranean.[2]

On the other hand, I am far from denying that sporadic admixture with the Sudanese or with Levantine peoples is without effect or that it has not taken place. We have seen how the modern Moslems are more negroid than the Copts, and how the "mixed" group is more negroid than the unmixed Moslems. We may admit the act and the effect of occasional admixture, and yet feel convinced that alone such admixture is insufficient to explain the difficulties at issue.

To sum up. There is no anthropometric (despite the historical) evidence that

[1] This fact dispels the following objection adduced in Thomson and McIver's *The Ancient Races of the Thebaïd*: "No one would allow that a negro nose and an European nose are simply legitimate deviations from a single race type. And yet these are the extremes which occur in our series" (p. 50). I contend that the extremes *do* meet and overlap, and that in the case of Egypt the margin of overlapping is still further widened by sporadic Sudanese and Levantine admixture.

[2] Compare for a similar correlation the well-known tubercular and rheumatic types of physique and colour existing among ourselves.

the population of Egypt, past or present, is composed of several different races. (Prior to the present investigation, my opinion had been diametrically opposite.) Our new anthropometric data favour the view which regards the Egyptians always as a homogeneous people who have varied now towards Caucasian, now towards negroid characters (according to environment), showing such close anthropometric affinity to Libyan, Arabian and like neighbouring peoples, showing such variability and possibly such power of absorption, that from the anthropometric standpoint no evidence is obtainable that the modern Egyptians have been appreciably affected by other than sporadic Sudanese admixture.

APPENDIX.

The following tables give the more important measurements made by me in Egypt. They comprise nearly all those measurements which have been drawn upon in these contributions. A complete list of the data obtained has been already published[1]; it need not be repeated here. The numbers at the top of the twenty-four columns of each table refer to the following measurements :—

3. Stature.
6. Height of shoulder from ground.
7. Height of elbow „ „
8. Height of wrist „ „
9. Height of hips „ „
10. Height of knee „ „
11. Height of ankle „ „
12. Head breadth.
13. Head length.
14. Upper facial length.
15. Total facial length.
16. Bimalar facial breadth.
17. Maximal facial breadth (bizygomatic).
22. External interorbital breadth.
25. Nasal breadth.
26. Nasal length.
27. Orbito-nasal arc.
28. Horizontal circumference.
30. Auriculo-vertical radius.
31. Auriculo-frontal radius.
32. Auriculo-nasal radius.
33. Auriculo-alveolar radius.
34. Auriculo-mental radius.
35. Auriculo-occipital radius.

[1] *Journal Anthrop. Inst.*, 1903, vol. xxxiii, pp. 82, 83; 1906, vol. xxxvi, p. 237. All the measurements, together with photographs and other data (shape, colour, texture, etc.), have been deposited at the Royal Anthropological Institute, where they are available for future study.

Each subject, after he had been photographed and his physical features had been noted, was marked with a blue pencil on the following points:—the tip of the acromion for 6 (in the above list of measurements), the edge of the head of the radius for 7, the tip of the styloid process of the radius for 8, the upper margin of the great trochanter for 9, the lower border of the internal condyle of the femur for 10, the tip of the internal malleolus for 11, the glabella for 13 and 28, the nasion for 14, 15, 26, and 32, the lower border of the chin for 15 and 34, the lower angle of the malar bone for 16, and the external border of the orbits at the suture for 22 and 27.[1]

Measurements 6–11 were taken upon the subject standing beside a wall to which a measuring tape had been fixed. A right-angled triangular piece of celluloid was applied to the scale to find the height of the point in question.

Measurements 12–26 were taken with callipers in the ordinary way. The sliding instrument, designed by Mr. John Gray (and described in this *Journal*, vol. xxxi, p. 111), was used throughout.

Measurements 27 and 28 were taken by means of a steel tape passed between the external margins of the orbits across the nose, or embracing the glabella and the most projecting point of the occiput.

Measurements 30–35 were taken from the ear hole to the most projecting frontal or occipital points or to the nasion, upper alveolus or chin. An apparatus, fitted with a goniometer (as described by me in *Man*, vol. iii, 1903, No. 4, p. 12), was used for this purpose. It was provided with a device, designed for me by Mr. Gray, which kept the horizontal or vertical traction upon the ear holes constant during the taking of the various radial measurements.

[1] Herein I have been guided by the excellent *Anthropologische Methoden*, published by the late Dr. Emil Schmidt, Leipzig, 1888.

KENA.

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
38	1754	—	—	—	—	—	—	146	190	70	115	98	136	101	37	44	108	543	—	—	—	—	—	—
57	1714	—	—	—	—	—	—	143	192	61	110	106	136	102	38	45	113	540	—	—	—	—	—	—
101	1772	—	—	—	—	—	—	132	199	73	123	105	129	98	42	55	110	543	—	—	—	—	—	—
122	1752	—	—	—	—	—	—	140	190	68	116	102	137	98	35	50	107	539	—	—	—	—	—	—
123	1713	—	—	—	—	—	—	146	191	65	109	98	136	99	37	47	114	546	—	—	—	—	—	—
124	1730	—	—	—	—	—	—	152	195	76	124	107	136	103	37	54	116	555	—	—	—	—	—	—
127	1730	—	—	—	—	—	—	146	202	68	115	99	133	99	36	45	114	562	—	—	—	—	—	—
163	1717	—	—	—	—	—	—	144	190	68	118	110	137	105	36	48	122	526	—	—	—	—	—	—
169	1713	—	—	—	—	—	—	140	188	69	118	108	133	99	41	52	111	537	—	—	—	—	—	—
182	1700	—	—	—	—	—	—	147	201	68	115	117	150	110	39	48	122	565	—	—	—	—	—	—
191	1723	—	—	—	—	—	—	145	187	70	119	97	132	96	34	47	109	533	—	—	—	—	—	—
207	1700	—	—	—	—	—	—	143	196	67	114	102	137	108	35	50	123	—	—	—	—	—	—	—
222	1684	—	—	—	—	—	—	138	182	65	108	104	135	99	32	47	113	510	—	—	—	—	—	—
237	—	—	—	—	—	—	—	144	191	66	114	105	132	98	35	50	114	—	—	—	—	—	—	—
243	—	—	—	—	—	—	—	146	200	58	108	101	136	91	36	46	108	—	—	—	—	—	—	—
260	1711	1377	1075	813	860	465	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
263	1702	—	—	—	—	—	—	147	191	67	—	—	143	—	41	47	—	—	—	—	—	—	—	—
269	1710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
270	1820	—	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—
312	1778	1455	1085	814	949	465	70	140	197	65	—	—	132	—	37	48	—	—	—	—	—	—	—	—
313	1705	1366	1048	775	910	467	65	146	191	68	—	—	141	—	34	47	—	—	—	—	—	—	—	—
314	1747	1406	1085	795	900	448	68	142	191	74	—	—	131	—	38	50	—	—	—	—	—	—	—	—
326	1710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
352	1712	1393	1045	784	940	465	58	143	199	73	—	—	140	—	35	52	—	—	—	—	—	—	—	—

KENA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
353	1706	1380	1068	800	903	460	70	138	189	65	—	—	138	—	36	44	—	—	—	—	—	—	—	—
375	1708	1368	1042	785	890	450	68	144	196	67	—	—	136	—	34	45	—	—	—	—	—	—	—	—
381	1697	—	—	—	—	—	—	138	196	66	—	—	142	—	40	47	—	—	—	—	—	—	—	—
445	1705	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
459	1718	1370	1073	772	925	455	63	148	202	67	—	—	139	—	34	51	—	—	—	—	—	—	—	—
470	1673	1375	1055	790	913	488	70	141	196	60	—	—	139	—	35	48	—	—	—	—	—	—	—	—
496	1691	1360	1025	779	890	455	59	149	197	61	—	—	140	—	40	44	—	—	—	—	—	—	—	—
502	—	—	—	—	—	—	—	144	204	65	121	106	134	96	39	47	113	565	147	135	110	111	134	113
555	—	—	—	—	—	—	—	140	200	62	113	95	134	—	39	46	—	—	142	—	—	—	—	—
579	—	—	—	—	—	—	—	149	182	69	121	108	144	—	37	49	—	—	152	—	—	—	—	—
580	—	—	—	—	—	—	—	148	183	68	115	100	128	—	36	48	—	—	142	—	—	—	—	—
592	—	—	—	—	—	—	—	147	200	62	110	109	144	103	39	41	114	564	150	141	108	107	119	119
618	—	—	—	—	—	—	—	144	200	58	103	101	138	97	41	42	110	550	147	132	109	109	128	116
630	—	—	—	—	—	—	—	138	196	64	111	99	127	—	36	51	—	—	147	126	103	107	132	123
637	—	—	—	—	—	—	—	146	192	61	100	100	129	99	33	45	110	541	149	133	108	112	123	110
655	—	—	—	—	—	—	—	141	201	67	113	114	137	105	47	45	124	557	147	135	112	119	136	122
676	—	—	—	—	—	—	—	142	195	68	110	108	141	—	35	47	—	—	150	—	—	—	—	—
710	—	—	—	—	—	—	—	143	189	61	102	105	137	95	39	44	108	—	145	128	102	106	125	116
731	—	—	—	—	—	—	—	139	187	66	112	108	131	95	34	52	111	530	140	128	106	104	115	150
735	—	—	—	—	—	—	—	148	188	68	118	103	133	—	39	50	—	—	144	132	107	109	129	124
794	—	—	—	—	—	—	—	142	200	61	111	110	140	105	43	46	117	558	142	132	108	119	137	122
801	—	—	—	—	—	—	—	143	194	67	114	108	140	—	37	50	—	—	146	132	108	110	133	116
858	—	—	—	—	—	—	—	144	188	65	115	110	139	—	39	45	—	—	148	132	105	114	130	124
898	—	—	—	—	—	—	—	150	197	72	117	113	143	105	40	49	126	—	145	134	114	112	128	124
903	—	—	—	—	—	—	—	145	195	68	118	109	141	106	36	50	123	—	142	127	110	111	135	117

KENA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
921	—	—	—	—	—	—	—	144	198	68	116	117	146	107	37	45	119	—	143	131	108	116	143	119
928	—	—	—	—	—	—	—	145	199	68	116	112	138	95	37	49	111	—	142	133	106	103	128	123
964	—	—	—	—	—	—	—	147	200	68	110	111	139	101	34	49	116	—	145	132	109	110	124	124
965	—	—	—	—	—	—	—	137	200	71	123	110	137	98	38	48	115	—	144	128	109	109	124	125
971	—	—	—	—	—	—	—	147	201	62	107	108	138	—	39	46	—	—	144	131	103	107	125	124
980	—	—	—	—	—	—	—	148	207	65	112	115	147	101	37	45	—	—	153	134	110	114	128	134
988	—	—	—	—	—	—	—	145	191	69	119	110	133	98	36	48	111	—	148	135	104	103	123	123
989	—	—	—	—	—	—	—	148	193	69	116	114	136	101	38	50	114	—	153	135	108	113	124	121
1001	—	—	—	—	—	—	—	145	205	65	116	114	139	103	39	46	117	—	152	133	109	112	131	128

GIRGA.

13	1703	—	—	—	—	—	—	140	189	67	120	114	137	107	44	48	119	542	—	—	—	—	—	—
34	1690	—	—	—	—	—	—	151	201	65	118	105	143	103	37	48	123	568	—	—	—	—	—	—
37	1704	—	—	—	—	—	—	135	188	73	117	100	142	109	37	48	113	523	—	—	—	—	—	—
46	1755	—	—	—	—	—	—	138	195	69	123	108	138	111	38	52	121	537	—	—	—	—	—	—
48	1695	—	—	—	—	—	—	149	187	63	114	104	143	108	38	44	113	542	—	—	—	—	—	—
59	1798	—	—	—	—	—	—	147	190	58	110	100	142	104	38	43	110	545	—	—	—	—	—	—
61	1720	—	—	—	—	—	—	147	191	69	122	103	141	104	38	50	123	542	—	—	—	—	—	—
72	1605	—	—	—	—	—	—	139	194	64	113	95	135	100	40	48	110	540	—	—	—	—	—	—
79	1790	—	—	—	—	—	—	143	202	74	132	110	142	105	39	54	115	558	—	—	—	—	—	—
86	1743	—	—	—	—	—	—	146	194	66	118	95	135	99	34	50	115	534	—	—	—	—	—	—
92	1690	—	—	—	—	—	—	143	203	67	118	97	135	105	38	50	115	565	—	—	—	—	—	—
96	1713	—	—	—	—	—	—	146	199	61	109	102	134	100	37	48	117	—	—	—	—	—	—	—

GIRGA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
103	1757		—	—	—	—	—	148	199	66	114	99	145	102	38	51	122	556	—	—	—	—	—	—
118	1707		—	—	—	—	—	164	193	67	115	107	146	102	34	50	123	571	—	—	—	—	—	—
126	1730	—		—	—	—	—	146	203	72	124	103	139	106	39	51	121	561	—	—	—	—	—	—
130	1745	—	—	—	—	—	—	144	189	63	113	105	139	97	38	49	110	531	—	—	—	—	—	—
137	1770	—	—	—	—	—	—	143	199	59	110	109	135	100	37	44	115	545	—	—	—	—	—	—
146	1743		—	—	—	—	—	144	192	64	118	107	135	99	34	54	113	—	—	—	—	—	—	—
147	1785	—	—	—	—	—	—	149	196	69	127	112	146	112	39	50	130	560	—	—	—	—	—	—
167	1757	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
168	1742	—	—	—	—	—	—	137	185	65	118	99	134	98	38	48	113	—	—	—	—	—	—	—
177	1745	—	—	—	—	—	—	148	196	72	119	105	136	104	42	53	122	550	—	—	—	—	—	—
180	1700	—	—	—	—	—	—	147	190	65	116	110	142	104	32	51	116	546	—	—	—	—	—	—
183	1710	—	—	—	—	—	—	142	194	59	104	108	133	102	37	43	112	533	—	—	—	—	—	—
186	1692	—	—	—	—	—	—	140	185	65	118	100	124	92	36	49	109	520	—	—	—	—	—	—
187	1725	—	—	—	—	—	—	145	196	52	96	106	139	107	37	43	116	558	—	—	—	—	—	—
189	1755	—	—	—	—	—	—	142	196	59	106	110	132	104	38	48	122	548	—	—	—	—	—	—
200	1705	—	—	—	—	—	—	138	198	62	114	109	136	107	36	47	123	548	—	—	—	—	—	—
210	1718	—	—	—	—	—	—	144	191	67	116	99	133	97	37	51	110	543	—	—	—	—	—	—
211	1700	—	—	—	—	—	—	142	193	67	118	102	133	102	34	54	116	543	—	—	—	—	—	—
213	1750	—	—	—	—	—	—	145	191	66	117	108	140	103	33	49	115	547	—	—	—	—	—	—
214	1713	—	—	—	—	—	—	145	191	70	123	107	138	100	36	54	115	540	—	—	—	—	—	—
242	—	—	—	—	—	—	—	146	199	63	110	106	135	102	39	46	119	—	—	—	—	—	—	—
246	1750	—	—	—	—	—	—	140	195	64	117	109	134	96	31	49	114	546	—	—	—	—	—	—
287	1785	—	—	—	—	—	—	148	198	66	—	—	141	—	37	48	—	—	—	—	—	—	—	—
291	1716	1361	1015	752	948	484	75	139	197	61	—	—	136	—	37	47	—	—	—	—	—	—	—	—
301	1708	—	—	—	—	—	—	152	205	68	—	—	139	—	35	45	—	—	—	—	—	—	—	—

GIRGA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	23	30	31	32	33	34	35
306	1769	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
330	1747	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
346	1708		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
348	1733		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
358	1707	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
383	1730	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
414	1686	1370	1039	780	938	490	63	145	198	66	—	—	139	—	35	43	—	—	—	—	—	—	—	—
419	1840	1515	1150	880	960	493	86	144	195	67	—	—	140	—	35	46	—	—	—	—	—	—	—	—
438	1735	1425	1080	810	965	477	60	140	200	67	—	—	133	—	36	46	—	—	—	—	—	—	—	—
449	1703	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
460	1690	1385	1045	790	885	460	64	143	186	68	—	—	128	—	35	48	—	—	—	—	—	—	—	—
476	1814	1490	1135	865	955	490	70	140	—	68	—	—	135	—	36	48	—	—	—	—	—	—	—	—
485	1704	1370	1042	803	913	482	68	144	195	67	—	—	140	—	34	53	—	—	—	—	—	—	—	—
492	1730	1400	1065	800	928	471	68	139	190	68	—	—	138	—	33	47	—	—	—	—	—	—	—	—
498	1744	1414	1085	820	929	486	70	140	192	66	—	—	132	—	35	46	—	—	—	—	—	—	—	—
501	—	—	—	—	—	—	—	143	197	63	110	104	133	103	36	44	113	556	144	128	100	107	—	—
520		—	—		—	—	—	137	184	67	114	100	130	98	34	47	113	519	139	132	105	110	125	107
531	—			—	—	—	—	147	187	69	115	114	137	105	39	51	124	554	150	134	114	112	128	114
538	—	—	—	—	—	—	—	141	193	68	118	111	137	105	36	49	121	536	141	130	109	113	131	118
539	—	—	—	—	—	—	—	150	193	66	113	110	144	109	37	49	121	550	143	133	108	111	126	114
540	—	—	—	—	—		—	149	184	60	107	104	139	—	36	47	—	—	—	—	—	—	—	—
545	—	—	—	—	—	—	—	145	198	65	113	112	145	—	36	43	—	—	—	—	—	—	—	—
546	—	—	—	—	—	—	—	155	177	73	124	115	143	—	34	52	—	—	—	—	—	—	—	—
565	—	—		—	—	—	—	146	204	68	116	114	138	—	40	48	—	—	147	—	—	—	—	—
569	—	—	—	—	—	—	—	148	193	64	114	106	145	—	36	43	—	—	153	—	—	—	—	—

GIRGA (*continued*).

Subject Number	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
581	—	—	—	—	—	—	—	133	185	64	110	107	135	—	34	45	—	—	143	—	—	—	—	—
621	—	—	—	—	—	—	—	143	205	66	110	107	142	—	40	49	—	—	148	136	113	116	138	121
623	—	—	—	—	—	—	—	146	202	69	119	108	134	—	39	50	—	—	158	—	—	—	—	—
625	—	—	—	—	—	—	—	143	198	66	113	—		—	38	47	—	—	145	—	—	—	—	—
636	—	—	—	—	—	—	—	142	203	64	110	112	144	104	37	43	121	560	146	135	111	114	129	132
664	—	—	—	—	—	—	—	143	204	72	113	112	139	—	45	49	—	—	147	—	—	—	—	—
695	—	—	—	—	—	—	—	—	—	68	114	106	135	—	34	45	—	—	—	—	—	—	—	—
708	—	—	—	—	—	—	—	140	192	70	117	100	133	—	35	48	—	—	147	135	112	116	137	114
755	—	—	—	—	—	—	—	145	207	63	109	112	139	—	37	48	—	—	147	134	112	111	121	131
767	—	—	—	—	—	—	—	152	197	67	114	114	146	—	38	47	—	—	153	—	—	—	—	—
770	—	—	—	—	—	—	—	147	192	65	113	116	147	—	38	47	—	—	144	133	112	114	138	119
777	—	—	—	—	—	—	—	148	190	—	—	—	142	—	—	—	—	—	140	128	109	113	129	112
785	—	—	—	—	—	—	—	141	192	—	—	—	144	—	—	—	—	—	140	124	107	115	140	122
804	—	—	—	—	—	—	—	140	196	66	112	106	136	98	35	45	115	545	140	131	107	113	130	118
808	—	—	—	—	—	—	—	147	197	65	107	115	144	—	—	—	—	—	143	138	108	111	128	114
835	—	—	—	—	—	—	—	144	205	70	117	112	141	106	35	47	121	566	143	130	111	115	133	126
836	—	—	—	—	—	—	—	152	197	63	107	114	144	100	37	43	109	565	145	135	107	113	130	123
847	—	—	—	—	—	—	—	148	196	66	109	107	142	—	36	50	—	—	145	132	104	104	125	124
857	—	—	—	—	—	—	—	150	198	64	118	110	145	—	40	45	—	—	148	—	—	—	—	—
879	—	—	—	—	—	—	—	141	191	68	117	106	137	—	40	50	—	—	148	134	108	112	125	121
892	—	—	—	—	—	—	—	146	186	70	114	121	147	101	41	48	111	—	144	127	104	117	135	116
893	—	—	—	—	—	—	—	144	197	62	108	108	129	98	42	43	111	—	148	130	107	107	134	124
902	—	—	—	—	—	—	—	147	201	71	123	114	137	—	35	50	—	—	151	135	107	109	131	131
933	—	—	—	—	—	—	—	144	193	68	114	114	137	107	38	45	123	—	148	133	110	112	126	118
929	—	—	—	—	—	—	—	146	184	68	110	108	137	—	33	47	—	—	142	128	106	107	125	110

GIRGA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
946	—	—	—	—	—	—	—	139	197	67	116	111	139	102	39	47	—	—	142	134	111	115	132	115
954	—	—	—	—	—	—	—	141	190	61	113	101	135	—	33	41	—	—	139	125	103	107	125	114
955	—	—	—	—	—	—	—	143	199	64	112	112	134	103	38	46	—	—	138	131	109	112	130	119
956	—	—	—	—	—	—	—	143	194	66	126	107	134	100	38	47	117	—	137	129	110	116	132	120
962	—	—	—	—	—	—	—	141	195	60	103	112	134	95	38	43	106	—	133	128	106	111	127	114
966	—	—	—	—	—	—	—	142	193	70	112	111	135	—	43	50	—	—	148	—	—	—	—	—

ASSIUT.

35	1710	—	—	—	—	—	—	143	206	64	118	103	135	113	45	48	119	563	—	—	—	—	—	—
42	1737	—	—	—	—	—	—	137	189	65	116	98	134	104	37	53	116	530	—	—	—	—	—	—
69	1761	—	—	—	—	—	—	147	204	70	124	110	146	114	44	53	122	570	—	—	—	—	—	—
75	1650	—	—	—	—	—	—	143	185	64	113	104	129	104	36	47	113	530	—	—	—	—	—	—
120	1707	—	—	—	—	—	—	140	186	67	116	108	135	100	35	50	116	527	—	—	—	—	—	—
145	1751	—	—	—	—	—	—	158	215	63	117	107	142	108	38	48	122	603	—	—	—	—	—	—
155	1713	—	—	—	—	—	—	136	192	65	117	100	128	93	38	47	113	533	—	—	—	—	—	—
160	1703	—	—	—	—	—	—	137	198	61	113	114	139	98	41	47	113	542	—	—	—	—	—	—
171	1701	—	—	—	—	—	—	139	203	69	123	115	141	106	40	51	120	555	—	—	—	—	—	—
192	1704	—	—	—	—	—	—	140	192	63	118	103	131	97	34	47	114	537	—	—	—	—	—	—
197	1723	—	—	—	—	—	—	151	196	68	124	107	138	108	36	52	122	566	—	—	—	—	—	—
227	—	—	—	—	—	—	—	136	200	73	132	104	140	107	37	51	123	—	—	—	—	—	—	—
236	—	—	—	—	—	—	—	144	190	65	115	105	139	96	36	52	112	—	—	—	—	—	—	—
257	—	—	—	—	—	—	—	—	—	64	—	—	132	—	37	46	—	—	—	—	—	—	—	—
258	1708	—	—	—	—	—	—	146	201	64	—	—	137	—	36	45	—	—	—	—	—	—	—	—

ASSIUT (*continued*).

Subject Number	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
261	1725	320	260	—		—	—	139	195	63	—	—	133	—	36	46	—	—	—	—	—		—	
264	1712	—	—	—	—	—	—	144	201	66	—	—	133	—	36	48	—	—	—		—		—	
281	1737	—	—	—	—	—	—	150	195	70	—	—	139	—	39	52	—	—	—	—	—	—	—	—
299	1725	—	—	—	—	—	—	146	201	61	—	—	139	—	38	45	—	—	—	—	—	—	—	
300	1713	—	—	—	—	—	—	147	202	66	—	—	143	—	38	42	—	—	—	—	—	—	—	—
344	1704	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
355	1705	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
363	1789	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
389	1718		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	—	—	—
391	1760	1406	1094	840	900	448	57	150	194	66	—	—	137	—	34	45	—	—	—	—	—	—	—	—
395	1725	1390	1074	823	882	442	58	142	204	65	—	—	138	—	35	48	—	—	—	—	—	—	—	—
399	1740	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
401	1750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
403	1660	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
406	1760	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
432	1795	1486	1130	840	975	489	69	140	201	65	—	—	142	—	43	47	—	—	—	—	—	—	—	—
435	1693	—	—	—	—	—	—	136	—	69	—	—	133	—	36	50	—	—	—	—	—	—	—	—
437	1705	—	—	—	—	—	—	141	189	65	—	—	133	—	36	50	—	—	—	—	—	—	—	—
455	1687	—	—	—	—	—	—	146	189	59	—	—	141	—	38	41	—	—	—	—	—	—	—	—
461	1742	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
462	1773	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
477	1745	1385	1052	805	890	453	67	148	199	66	—	—	142	—	38	43	—	—	—	—	—	—	—	—
484	1692	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
487	1689	1365	1030	771	918	465	66	149	196	65	—	—	148	—	36	49	—	—	—	—	—	—	—	—
494	1696	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

ASSIUT (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
503	—	—	—	—	—	—	—	145	200	64	109	107	136	100	34	44	115	555	149	132	111	111	122	116
506	—	—	—	—	—	—	—	142	199	67	117	110	137	—	39	49	—	—	—	—	—	—	—	—
514	—	—	—	—	—	—	—	151	186	59	107	101	134	97	34	46	114	540	—	—	—	—	—	—
521	—	—	—	—	—	—	—	153	198	66	115	110	147	107	40	48	123	562	143	135	113	118	138	123
537	—	—	—	—	—	—	—	144	190	64	105	101	135	96	36	51	109	540	136	—	—	—	—	—
543	—	—	—	—	—	—	—	147	198	70	114	104	140	—	37	48	—	—	—	—	—	—	—	—
544	—	—	—	—	—	—	—	144	204	70	115	118	137	—	33	45	—	—	—	—	—	—	—	—
549	—	—	—	—	—	—	—	142	185	66	113	111	137	—	34	41	—	—	—	—	—	—	—	—
559	—	—	—	—	—	—	—	147	199	70	121	107	139	—	31	51	—	—	153	—	—	—	—	—
562	—	—	—	—	—	—	—	143	196	66	107	107	140	—	32	47	—	—	146	—	—	—	—	—
567	—	—	—	—	—	—	—	140	201	71	123	107	138	—	40	50	—	—	142	—	—	—	—	—
638	—	—	—	—	—	—	—	142	193	65	113	107	137	—	36	46	—	—	139	—	—	—	—	—
647	—	—	—	—	—	—	—	138	190	67	114	109	129	—	45	50	—	—	142	—	—	—	—	—
650	—	—	—	—	—	—	—	137	194	66	109	109	139	—	36	48	—	—	144	—	—	—	—	—
668	—	—	—	—	—	—	—	141	191	64	112	102	134	—	36	47	—	—	148	—	—	—	—	—
743	—	—	—	—	—	—	—	144	198	67	113	104	135	—	35	50	—	—	146	135	112	118	135	113
783	—	—	—	—	—	—	—	148	197	—	—	—	137	—	—	—	—	—	149	138	109	107	127	123
791	—	—	—	—	—	—	—	144	197	—	—	—	144	—	—	—	—	—	148	137	112	109	128	120
805	—	—	—	—	—	—	—	144	196	—	—	—	138	—	—	—	—	—	140	138	108	105	125	119
813	—	—	—	—	—	—	—	146	200	73	119	107	135	101	40	50	115	555	142	130	110	111	122	124
846	—	—	—	—	—	—	—	151	203	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
860	—	—	—	—	—	—	—	150	205	66	109	108	144	—	40	49	—	—	140	132	113	119	132	118
863	—	—	—	—	—	—	—	137	188	70	110	98	128	—	32	50	—	—	142	—	—	—	—	—
880	—	—	—	—	—	—	—	140	200	62	108	109	133	—	38	42	—	—	143	129	104	109	131	120
888	—	—	—	—	—	—	—	140	198	70	119	116	136	—	38	48	—	—	147	136	109	112	130	121

ASSIUT (*continued*).

Subject Number	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
904	—	—	—	—	—	—	—	144	199	64	115	111	135	—	41	44	—	—	142	132	110	116	135	112
915	—	—	—	—	—	—	—	148	211	67	118	114	144	105	36	47	120	—	143	135	115	117	133	127
916	—	—	—	—	—	—	—	139	200	63	110	102	131	—	35	45	—	—	144	—	—	—	—	—
924	—	—	—	—	—	—	—	144	191	65	112	118	149	—	39	47	—	—	138	129	104	114	131	119
926	—	—	—	—	—	—	—	144	204	70	116	120	141	112	38	50	135	—	150	133	108	113	127	129
953	—	—	—	—	—	—	—	144	189	69	116	111	136	—	38	48	—	—	140	—	—	—	—	—
963	—	—	—	—	—	—	—	156	192	69	117	128	151	—	38	50	—	—	140	—	—	—	—	—
974	—	—	—	—	—	—	—	140	194	58	101	104	138	101	34	43	115	—	133	127	108	116	138	115

MINIA.

31	1740	—	—	—	—	—	—	145	195	67	113	103	139	106	38	53	115	548	—	—	—	—	—	—
44	1698	—	—	—	—	—	—	145	203	63	114	100	143	109	35	49	120	562	—	—	—	—	—	—
54	1718	—	—	—	—	—	—	138	190	65	117	105	138	104	38	50	113	543	—	—	—	—	—	—
76	1663	—	—	—	—	—	—	146	189	66	114	106	130	—	33	53	113	537	—	—	—	—	—	—
77	1654	—	—	—	—	—	—	134	188	66	114	98	130	95	36	53	115	528	—	—	—	—	—	—
87	1785	—	—	—	—	—	—	146	192	69	119	109	144	103	38	53	114	545	—	—	—	—	—	—
91	1725	—	—	—	—	—	—	146	196	72	118	105	138	108	38	55	120	554	—	—	—	—	—	—
93	1693	—	—	—	—	—	—	142	197	64	113	102	138	104	34	47	118	553	—	—	—	—	—	—
173	1723	—	—	—	—	—	—	146	199	64	120	103	140	106	35	47	118	552	—	—	—	—	—	—
190	1737	—	—	—	—	—	—	148	192	66	118	98	138	100	39	50	115	548	—	—	—	—	—	—
198	1720	—	—	—	—	—	—	140	202	67	121	105	142	103	39	51	115	555	—	—	—	—	—	—
235	1707	—	—	—	—	—	—	146	196	68	116	109	135	98	35	52	113	—	—	—	—	—	—	—
240	—	—	—	—	—	—	—	143	194	70	125	111	140	103	32	46	122	—	—	—	—	—	—	—
244	—	—	—	—	—	—	—	147	196	65	112	105	135	101	40	42	113	—	—	—	—	—	—	—

MINIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
256	1728	—	—	—	—	—	—	150	198	69	—	—	136	—	36	52	—	—	—	—	—	—	—	—
294	1705	1359	1049	779	885	445	72	141	184	58	—	—	132	—	36	43	—	—	—	—	—	—	—	—
302	1700	—	—	—	—	—	—	149	187	64	—	—	132	—	38	48	—	—	—	—	—	—	—	—
349	1707	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
364	1760	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
386	1726	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
394	1736	1389	1050	815	898	457	59	142	190	70	—	—	143	—	36	47	—	—	—	—	—	—	—	—
433	1732	1415	1060	800	943	464	64	145	200	69	—	—	133	—	40	47	—	—	—	—	—	—	—	—
436	1698	1360	1035	780	885	455	62	142	197	67	—	—	140	—	38	48	—	—	—	—	—	—	—	—
454	1728	1390	1055	795	923	473	62	148	195	71	—	—	139	—	38	55	—	—	—	—	—	—	—	—
490	1708	—	—	—	—	—	—	142	182	62	—	—	127	—	36	45	—	—	—	—	—	—	—	—
535	—	—	—	—	—	—	—	150	191	66	108	107	143	101	41	45	121	562	140	131	107	107	125	110
552	—	—	—	—	—	—	—	143	186	64	111	99	133	—	35	47	—	—	143	—	—	—	—	—
619	—	—	—	—	—	—	—	142	203	61	110	105	—	—	39	41	—	—	146	—	—	—	—	—
644	—	—	—	—	—	—	—	140	195	63	106	103	131	—	36	44	—	—	143	—	—	—	—	—
683	—	—	—	—	—	—	—	146	192	59	104	111	134	—	38	41	—	—	136	—	—	—	—	—
712	—	—	—	—	—	—	—	144	200	—	—	—	—	—	—	—	—	—	148	133	111	115	133	119
753	—	—	—	—	—	—	—	144	193	61	102	110	137	—	40	43	—	—	146	133	106	110	129	119
757	—	—	—	—	—	—	—	—	—	66	114	113	137	—	37	48	—	—	—	—	—	—	—	—
759	—	—	—	—	—	—	—	144	184	58	98	104	134	—	36	44	—	—	143	128	103	102	121	104
775	—	—	—	—	—	—	—	139	192	—	—	—	138	—	—	—	—	—	139	127	111	119	138	115
814	—	—	—	—	—	—	—	138	196	69	109	106	137	100	36	47	114	547	143	133	110	108	133	116
894	—	—	—	—	—	—	—	139	196	67	117	113	140	—	35	48	—	—	138	—	—	—	—	—
900	—	—	—	—	—	—	—	134	197	65	105	117	137	101	36	46	114	—	140	124	103	109	127	117
982	—	—	—	—	—	—	—	145	197	69	118	110	139	102	37	51	—	—	143	136	112	114	139	118

BENI SUEF.

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
3	1830	1488	1143	853	978	462	—	157	200	67	125	113	146	113	37	48	123	569	—	—	—	—	—	—
9	1720	—	—	—	—	—	—	140	188	69	124	98	138	111	33	48	122	533	—	—	—	—	—	—
49	1707	—	—	—	—	—	—	143	203	57	110	113	138	108	38	46	115	555	—	—	—	—	—	—
74	1690	—	—	—	—	—	—	150	198	60	112	101	137	105	38	46	118	560	—	—	—	—	—	—
108	1695	—	—	—	—	—	—	143	203	63	118	107	142	101	40	52	115	566	—	—	—	—	—	—
109	1690	—	—	—	—	—	—	139	199	68	118	104	145	103	36	51	122	547	—	—	—	—	—	—
253	1708	—	—	—	—	—	—	146	192	61	—	—	140	—	35	47	—	—	—	—	—	—	—	—
254	1743	—	—	—	—	—	—	137	193	66	—	—	136	—	34	56	—	—	—	—	—	—	—	—
329	1685	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
336	1646	1347	1000	720	895	440	70	147	190	63	—	—	134	—	34	44	—	—	—	—	—	—	—	—
351	1785	1468	1129	844	950	482	61	146	196	71	—	—	140	—	34	52	—	—	—	—	—	—	—	—
362	1737	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
376	1752	—	—	—	—	—	—	149	200	69	—	—	141	—	46	48	—	—	—	—	—	—	—	—
385	1709	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
421	1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
434	1725	1391	1070	800	904	472	70	147	198	66	—	—	142	—	38	45	—	—	—	—	—	—	—	—
456	1728	—	—	—	—	—	—	142	184	61	—	—	141	—	36	44	—	—	—	—	—	—	—	—
474	1749	1425	1089	820	902	464	68	145	188	64	—	—	142	—	35	49	—	—	—	—	—	—	—	—
516	—	—	—	—	—	—	—	141	184	62	104	109	133	101	37	41	114	520	—	—	—	—	—	—
547	—	—	—	—	—	—	—	142	209	73	122	105	139	—	35	53	—	—	—	—	—	—	—	—
651	—	—	—	—	—	—	—	141	192	62	102	106	136	101	35	44	114	541	147	135	105	105	128	111
656	—	—	—	—	—	—	—	143	194	71	119	116	142	—	33	50	—	—	146	137	110	106	129	121
705	—	—	—	—	—	—	—	141	196	67	107	107	137	—	39	46	—	—	144	128	108	108	123	118
707	—	—	—	—	—	—	—	147	194	65	113	106	143	—	37	45	—	—	152	128	106	109	134	125

BENI SUEF (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
772	—	—	—	—	—	—	—	148	200	—	—	—	143	—	—	—	—	—	149	132	105	113	131	123
790	—	—	—	—	—	—	—	146	194	—	—	—	131	—	—	—	—	—	146	139	121	113	134	110
827	—	—	—	—	—	—	—	138	187	57	100	105	135	—	38	39	—	—	143	—	—	—	—	—
837	—	—	—	—	—	—	—	141	192	65	109	113	136	—	38	49	—	—	146	128	105	105	121	114
850	—	—	—	—	—	—	—	143	184	69	114	110	137	—	38	49	—	—	143	132	104	104	125	111
896	—	—	—	—	—	—	—	135	195	72	120	102	138	105	38	51	121	—	140	135	112	122	143	108
972	—	—	—	—	—	—	—	148	196	68	115	114	137	105	35	47	122	—	149	134	109	106	125	124

FAYUM.

41	1725	—	—	—	—	—	—	146	206	68	121	101	138	114	40	53	120	570	—	—	—	—	—	—
71	1590	—	—	—	—	—	—	141	186	68	120	105	135	101	38	53	112	528	—	—	—	—	—	—
115	1720	—	—	—	—	—	—	146	203	69	121	109	142	107	38	50	125	—	—	—	—	—	—	—
138	1752	—	—	—	—	—	—	143	192	63	114	103	135	103	38	47	117	537	—	—	—	—	—	—
209	1700	—	—	—	—	—	—	145	192	68	115	104	139	106	36	48	118	542	—	—	—	—	—	—
276	1692	1353	1035	792	850	432	75	142	192	66	—	—	132	—	35	47	—	—	—	—	—	—	—	—
309	1770	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
339	1735	—	—	—	—	—	—	145	190	69	—	—	135	—	34	46	—	—	—	—	—	—	—	—
365	1712	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
371	1741	1405	1055	786	905	456	58	146	200	67	—	—	142	—	38	47	—	—	—	—	—	—	—	—
382	1652	—	—	—	—	—	—	139	191	71	—	—	141	—	41	49	—	—	—	—	—	—	—	—
417	1755	—	—	—	—	—	—	140	204	72	—	—	138	—	36	52	—	—	—	—	—	—	—	—
468	1750	1456	1100	825	940	475	68	143	186	64	—	—	136	—	36	42	—	—	—	—	—	—	—	—
499	1739	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

FAYUM (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
561	—	—	—	—	—	—	—	143	202	64	109	109	139	—	39	46	—	—	151	—	—	—	—	—
564	—	—	—	—	—	—	—	140	200	69	116	109	138	—	35	48	—	—	153	—	—	—	—	—
593	—	—	—	—	—	—	—	144	198	62	105	105	133	101	36	44	115	542	142	134	112	113	132	120
611	—	—	—	—	—	—	—	147	202	68	114	107	139	103	40	43	122	566	148	144	113	115	134	123
612	—	—	—	—	—	—	—	150	198	74	122	113	145	105	37	47	124	557	150	144	120	118	133	111
617	—	—	—	—	—	—	—	132	189	63	—	104	130	—	32	42	—	—	139	—	—	—	—	—
620	—	—	—	—	—	—	—	147	196	69	113	100	139	—	33	49	—	—	152	139	111	112	129	112
624	—	—	—	—	—	—	—	148	191	71	124	99	139	—	35	52	—	—	146	—	—	—	—	—
652	—	—	—	—	—	—	—	145	185	61	109	110	135	104	34	41	117	532	151	129	104	104	118	114
665	—	—	—	—	—	—	—	149	194	60	106	106	137	—	34	46	—	—	143	138	110	104	123	116
670	—	—	—	—	—	—	—	143	184	70	120	107	138	—	35	50	—	—	146	—	—	—	—	—
672	—	—	—	—	—	—	—	143	186	64	112	108	139	—	34	47	—	—	135	—	—	—	—	—
679	—	—	—	—	—	—	—	147	181	63	106	106	137	—	38	43	—	—	152	—	—	—	—	—
729	—	—	—	—	—	—	—	144	193	—	—	—	—	—	—	—	—	—	152	138	115	113	122	113
756	—	—	—	—	—	—	—	143	198	73	117	117	137	—	38	51	—	—	141	134	114	118	132	118
779	—	—	—	—	—	—	—	150	212	—	—	—	148	—	—	—	—	—	154	140	117	122	133	122
859	—	—	—	—	—	—	—	145	190	68	115	107	136	—	33	46	—	—	146	—	—	—	—	—
866	—	—	—	—	—	—	—	139	196	68	112	108	137	—	39	46	—	—	146	131	107	111	129	121
868	—	—	—	—	—	—	—	140	195	65	111	102	139	—	31	47	—	—	145	139	110	110	129	115
884	—	—	—	—	—	—	—	144	191	67	114	113	137	—	38	47	—	—	144	—	—	—	—	—
910	—	—	—	—	—	—	—	135	197	69	111	107	136	—	37	48	—	—	143	—	—	—	—	—
911	—	—	—	—	—	—	—	142	190	64	110	111	136	99	37	42	117	—	142	131	112	116	132	109
918	—	—	—	—	—	—	—	146	200	68	117	103	133	99	38	50	113	—	150	131	105	107	129	125
937	—	—	—	—	—	—	—	143	202	69	112	106	138	102	41	50	—	—	150	142	113	112	128	118
944	—	—	—	—	—	—	—	141	194	66	117	107	140	101	39	48	—	—	154	—	—	—	—	—

GIZA.

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
11	1730	—	—	—	—	—	—	151	195	63	114	111	143	114	35	54	—	—	—	—	—	—	—	—
52	1700	—	—	—	—	—	—	138	202	68	121	103	139	107	36	52	121	560	—	—	—	—	—	—
55	1692	—	—	—	—	—	—	143	196	68	116	108	134	101	42	52	115	554	—	—	—	—	—	—
83	1690	—	—	—	—	—	—	143	195	62	112	104	132	98	39	48	116	543	—	—	—	—	—	—
105	1745	—	—	—	—	—	—	146	190	70	123	98	133	98	33	58	112	544	—	—	—	—	—	—
106	1712	—	—	—	—	—	—	145	195	66	116	114	148	100	36	51	116	547	—	—	—	—	—	—
107	1713	—	—	—	—	—	—	139	196	67	121	107	133	102	34	49	118	546	—	—	—	—	—	—
131	1707	—	—	—	—	—	—	152	194	67	126	108	145	102	39	52	116	554	—	—	—	—	—	—
157	1716	—	—	—	—	—	—	149	197	71	127	106	147	107	41	50	127	556	—	—	—	—	—	—
165	1745	—	—	—	—	—	—	—	—	69	116	105	137	107	36	49	119	—	—	—	—	—	—	—
179	1694	—	—	—	—	—	—	138	182	62	114	110	141	97	34	48	116	520	—	—	—	—	—	—
201	1768	—	—	—	—	—	—	140	198	64	114	98	136	98	37	50	114	552	—	—	—	—	—	—
224	1534	—	—	—	—	—	—	147	199	59	110	103	144	103	38	44	116	—	—	—	—	—	—	—
230	—	—	—	—	—	—	—	146	200	66	119	114	144	110	36	50	125	—	—	—	—	—	—	—
231	1696	—	—	—	—	—	—	144	188	67	124	108	140	104	34	50	120	535	—	—	—	—	—	—
337	1669	—	—	—	—	—	—	144	201	63	—	—	139	—	37	47	—	—	—	—	—	—	—	—
338	1742	—	—	—	—	—	—	136	191	62	—	—	126	—	30	41	—	—	—	—	—	—	—	—
369	1703	1379	1035	780	885	425	69	141	189	66	—	—	138	—	41	48	—	—	—	—	—	—	—	—
384	1710	—	—	—	—	—	—	146	191	62	—	129	—	—	36	46	—	—	—	—	—	—	—	—
416	1710	1390	1070	809	922	468	58	133	192	60	—	—	136	—	34	46	—	—	—	—	—	—	—	—
440	1725	—	—	—	—	—	—	141	186	63	—	—	137	—	38	49	—	—	—	—	—	—	—	—
482	1691	1375	1040	800	895	448	67	143	191	71	—	—	132	—	34	50	—	—	—	—	—	—	—	—
505	—	—	—	—	—	—	—	143	191	68	116	105	137	—	34	49	—	—	—	—	—	—	—	—
511	—	—	—	—	—	—	—	141	190	64	115	111	142	103	36	46	114	535	139	123	105	114	138	110

GIZA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
529	—	—	—	—	—	—	—	145	206	70	117	117	146	—	37	49	—	—	—	—	—	—	—	—
548	—	—	—	—	—	—	—	141	192	65	109	106	131	—	30	42	—	—	—	—	—	—	—	—
554	—	—	—	—	—	—	—	145	200	63	110	112	142	—	41	44	—	—	143	—	—	—	—	—
568	—	—	—	—	—	—	—	—	—	65	114	113	143	—	36	48	—	—	151	—	—	—	—	—
616	—	—	—	—	—	—	—	143	195	66	112	100	128	—	28	46	—	—	150	133	115	110	113	123
640	—	—	—	—	—	—	—	149	188	63	107	105	138	—	36	44	—	—	142	—	—	—	—	—
642	—	—	—	—	—	—	—	148	199	69	115	109	142	—	40	53	—	—	149	—	—	—	—	—
680	—	—	—	—	—	—	—	150	206	71	118	106	138	—	37	50	—	—	149	—	—	—	—	—
692	—	—	—	—	—	—	—	145	199	59	109	103	134	—	37	43	—	—	158	—	—	—	—	—
701	—	—	—	—	—	—	—	145	186	67	107	101	138	—	35	50	—	—	145	—	—	—	—	—
704	—	—	—	—	—	—	—	143	197	67	112	108	138	103	38	46	120	533	143	133	111	118	132	114
706	—	—	—	—	—	—	—	149	202	64	113	117	142	—	38	44	—	—	147	135	113	112	128	115
717	—	—	—	—	—	—	—	135	186	—	—	—	—	—	—	—	—	—	141	132	112	116	131	105
733	—	—	—	—	—	—	—	143	197	68	121	103	137	—	41	45	—	—	144	127	105	106	129	124
781	—	—	—	—	—	—	—	140	193	—	—	—	139	—	—	—	—	—	157	142	114	107	116	122
782	—	—	—	—	—	—	—	144	188	—	—	—	134	—	—	—	—	—	147	132	107	106	118	127
786	—	—	—	—	—	—	—	136	188	—	—	—	128	—	—	—	—	—	146	129	107	107	118	117
787	—	—	—	—	—	—	—	148	208	—	—	—	135	—	—	—	—	—	155	143	113	113	132	123
792	—	—	—	—	—	—	—	146	197	—	—	—	143	—	—	—	—	—	148	136	115	115	141	120
807	—	—	—	—	—	—	—	143	191	65	112	—	136	—	—	—	—	—	143	127	104	103	127	119
852	—	—	—	—	—	—	—	141	184	68	120	106	135	—	31	48	—	—	142	131	102	105	119	112
855	—	—	—	—	—	—	—	142	205	69	117	107	135	—	36	49	—	—	152	—	—	—	—	—
862	—	—	—	—	—	—	—	149	190	65	111	104	141	—	35	46	—	—	148	—	—	—	—	—
870	—	—	—	—	—	—	—	146	207	67	115	114	138	—	—	—	—	—	140	135	113	118	131	123
872	—	—	—	—	—	—	—	145	196	72	119	109	137	103	36	51	120	557	154	143	115	106	133	120

GIZA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
906	—	—	—	—	—	—	—	142	189	67	113	104	127	—	47	—	—	—	136	126	104	115	130	114
912	—	—	—	—	—	—	—	145	197	72	119	114	136	—	36	54	—	—	147	—	—	—	—	—
920	—	—	—	—	—	—	—	138	194	63	105	109	133	98	32	43	115	—	148	133	111	109	123	117
922	—	—	—	—	—	—	—	141	191	69	111	112	139	—	38	45	—	—	144	—	—	—	—	—
992	—	—	—	—	—	—	—	145	191	61	104	109	130	—	34	44	—	—	145	129	104	107	130	117
994	—	—	—	—	—	—	—	139	196	68	113	112	135	96	34	45	116	—	151	139	113	115	132	118
1002	—	—	—	—	—	—	—	144	199	65	115	110	137	99	36	47	118	—	146	133	112	113	135	120

MENUFIA.

29	1807	—	—	—	—	—	—	140	192	65	120	105	142	104	37	52	115	548	—	—	—	—	—	—
40	1772	—	—	—	—	—	—	148	195	65	123	116	146	109	36	47	111	562	—	—	—	—	—	—
58	1692	—	—	—	—	—	—	145	199	64	113	98	137	107	38	47	115	557	—	—	—	—	—	—
62	—	—	—	—	—	—	—	—	—	64	112	115	137	111	37	54	115	—	—	—	—	—	—	—
78	1700	—	—	—	—	—	—	136	191	61	116	94	127	93	38	48	105	532	—	—	—	—	—	—
88	1730	—	—	—	—	—	—	145	195	67	122	100	139	99	37	52	111	559	—	—	—	—	—	—
98	1790	—	—	—	—	—	—	147	199	75	124	106	144	109	36	55	120	568	—	—	—	—	—	—
104	1727	—	—	—	—	—	—	142	193	69	124	99	141	99	34	51	115	537	—	—	—	—	—	—
110	1760	—	—	—	—	—	—	145	190	66	115	109	128	94	35	55	114	536	—	—	—	—	—	—
125	1730	—	—	—	—	—	—	150	195	66	119	104	136	106	37	49	120	557	—	—	—	—	—	—
129	1790	—	—	—	—	—	—	145	206	74	130	101	138	101	38	54	123	568	—	—	—	—	—	—
133	1738	—	—	—	—	—	—	142	191	58	111	106	136	105	40	46	113	532	—	—	—	—	—	—
139	1707	—	—	—	—	—	—	141	195	71	124	100	133	98	39	54	113	542	—	—	—	—	—	—
153	1771	—	—	—	—	—	—	146	191	66	115	101	134	99	36	49	113	540	—	—	—	—	—	—

MENUFIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
154	1732	—	—	—	—	—	—	147	193	68	115	100	130	98	37	53	118	542	—	—	—	—	—	—
162	1700	—	—	—	—	—	—	150	200	72	127	106	135	106	38	53	116	560	—	—	—	—	—	—
166	1732	—	—	—	—	—	—	142	193	63	112	105	133	104	36	50	120	551	—	—	—	—	—	—
176	1740	—	—	—	—	—	—	149	—	61	112	105	143	105	42	47	123	567	—	—	—	—	—	—
188	1690	—	—	—	—	—	—	139	194	70	118	100	132	105	34	54	122	540	—	—	—	—	—	—
203	1684	—	—	—	—	—	—	152	193	65	118	103	141	104	32	46	120	551	—	—	—	—	—	—
205	1760	—	—	—	—	—	—	145	202	62	115	103	136	100	37	46	112	555	—	—	—	—	—	—
206	1832	—	—	—	—	—	—	152	191	67	119	121	145	111	37	50	117	552	—	—	—	—	—	—
238	—	—	—	—	—	—	—	144	189	61	114	105	138	103	36	47	115	—	—	—	—	—	—	—
265	1721	—	—	—	—	—	—	147	196	63	—	—	144	—	35	50	—	—	—	—	—	—	—	—
268	1753	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
271	1700	1373	1064	762	905	445	50	142	195	65	—	—	141	—	36	50	—	—	—	—	—	—	—	—
278	1743	—	—	—	—	—	—	141	195	59	—	—	146	—	38	50	—	—	—	—	—	—	—	—
286	1741	—	—	—	—	—	—	141	195	60	—	—	140	—	37	48	—	—	—	—	—	—	—	—
293	1708	—	—	—	—	—	—	139	198	61	—	—	142	—	38	49	—	—	—	—	—	—	—	—
304	1708	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
305	1703	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
308	1735	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
335	1600	1308	988	724	840	418	64	148	197	64	—	—	138	—	35	44	—	—	—	—	—	—	—	—
343	1717	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
379	1732	—	—	—	—	—	—	139	195	68	—	—	136	—	35	50	—	—	—	—	—	—	—	—
397	1717	—	—	—	—	—	—	148	197	70	—	—	142	—	38	50	—	—	—	—	—	—	—	—
405	1705	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
408	1709	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
410	1748	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

MENUFIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
415	1747	—	—	—	—	—	—	146	200	69	—	—	139	—	40	51	—	—	—	—	—	—	—	—
418	1754	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
420	1752	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
422	1706	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
423	1725	—	—	—	—	—	—	137	190	63	—	—	135	—	32	45	—	—	—	—	—	—	—	—
424	1727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
425	1730	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
426	1729	1410	1060	785	940	445	68	139	191	61	—	—	132	—	35	47	—	—	—	—	—	—	—	—
430	1720	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
444	1696	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
457	1788	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
465	1710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
466	1674	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
475	1750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
488	1703	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
491	1778	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
510	—	—	—	—	—	—	—	143	200	58	109	111	139	—	37	42	—	—	—	—	—	—	—	—
512	—	—	—	—	—	—	—	155	203	64	116	108	145	105	39	47	118	567	—	—	—	—	—	—
531	—	—	—	—	—	—	—	157	194	73	125	113	139	107	37	52	124	567	150	—	—	—	—	—
558	—	—	—	—	—	—	—	145	192	70	118	103	137	—	33	49	—	—	147	—	—	—	—	—
560	—	—	—	—	—	—	—	142	191	68	113	107	135	—	38	49	—	—	150	—	—	—	—	—
563	—	—	—	—	—	—	—	138	186	65	109	108	132	—	37	49	—	—	143	—	—	—	—	—
572	—	—	—	—	—	—	—	141	200	69	119	104	133	—	36	50	—	—	148	—	—	—	—	—
576	—	—	—	—	—	—	—	153	196	72	130	113	137	—	38	48	—	—	153	—	—	—	—	—
589	—	—	—	—	—	—	—	140	—	63	103	106	132	98	34	47	110	541	143	135	110	106	123	116

MENUFIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
600	—	—	—	—	—	—	—	144	191	67	113	107	145	105	35	48	118	540	147	138	115	120	137	113
602	—	—	—	—	—	—	—	149	192	67	115	102	137	—	35	46	—	—	151	137	110	107	125	122
603	—	—	—	—	—	—	—	142	192	63	109	105	135	—	33	42	—	—	148	129	111	110	133	119
604	—	—	—	—	—	—	—	142	200	66	108	113	138	—	39	46	—	—	150	146	116	111	131	117
605	—	—	—	—	—	—	—	147	205	65	111	100	138	—	37	46	—	—	151	131	109	112	133	124
613	—	—	—	—	—	—	—	147	199	64	114	106	134	—	37	47	—	—	147	133	110	111	129	125
614	—	—	—	—	—	—	—	152	196	77	137	104	144	107	38	54	128	563	153	145	115	117	134	127
632	—	—	—	—	—	—	—	148	200	72	116	107	145	—	—	53	—	—	154	—	—	—	—	—
658	—	—	—	—	—	—	—	141	191	68	116	111	137	102	34	47	120	525	145	136	107	108	125	118
663	—	—	—	—	—	—	—	150	197	69	118	111	139	100	35	53	—	—	148	134	109	112	127	122
698	—	—	—	—	—	—	—	148	196	72	118	115	145	—	32	52	—	—	147	—	—	—	—	—
700	—	—	—	—	—	—	—	157	204	66	107	123	148	—	40	51	—	—	155	—	—	—	—	—
702	—	—	—	—	—	—	—	143	193	66	116	111	137	—	39	45	—	—	146	—	—	—		—
703	—	—	—	—	—	—	—	145	197	66	111	106	138	—	39	53	—	—	144	134	108	112	128	118
709	—	—	—	—	—	—	—	141	197	64	106	108	138	—	38	45	—	—	149	141	113	113	129	119
711	—	—	—	—	—	—	—	153	192	—	—	—	—	—	—	—	—	—	141	132	108	113	129	115
714	—	—	—	—	—	—	—	138	184	61	109	105	128	—	36	41	—	—	150	131	103	107	124	112
718	—	—	—	—	—	—	—	147	195	58	104	112	133	—	38	38	—	—	141	136	111	120	133	103
720	—	—	—	—	—	—	—	146	200	—	—	—	—	—	—	—	—	—	145	128	106	111	132	120
722	—	—	—	—	—	—	—	146	196	—	—	—	—	—	—	—	—	—	155	138	116	115	125	111
723	—	—	—	—	—	—	—	146	198	—	—	—	—	—	—	—	—	—	156	138	113	111	127	128
724	—	—	—	—	—	—	—	147	196	—	—	—	—	—	—	—	—	—	141	130	112	113	133	116
725	—	—	—	—	—	—	—	146	200	—	—	—	—	—	—	—	—	—	152	141	115	111	124	117
726	—	—	—	—	—	—	—	142	189	—	—	—	—	—	—	—	—	—	146	133	113	112	128	111
736	—	—	—	—	—	—	—	149	197	66	114	106	146	—	37	46	—	—	153	138	113	111	131	132

MENUFIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
754	—	—	—	—	—	—	—	150	193	67	117	118	144	—	38	44	—	—	153	139	117	116	137	107
762	—	—	—	—	—	—	—	148	194	65	113	114	142	—	41	46	—	—	149	132	113	122	136	114
765	—	—	—	—	—	—	—	136	194	68	114	102	126	—	35	52	—	—	142	—	—	—	—	—
768	—	—	—	—	—	—	—	146	199	68	110	112	133	—	38	47	—	—	158	—	—	—	—	—
769	—	—	—	—	—	—	—	145	202	69	117	116	141	—	37	45	—	—	156	—	—	—	—	—
773	—	—	—	—	—	—	—	155	194	—	—	—	141	—	—	—	—	—	148	137	110	112	135	121
774	—	—	—	—	—	—	—	137	205	—	—	—	133	—	—	—	—	—	154	140	112	114	132	127
780	—	—	—	—	—	—	—	146	197	—	—	—	135	—	—	—	—	—	157	146	113	110	129	113
788	—	—	—	—	—	—	—	149	194	—	—	—	139	—	—	—	—	—	143	128	106	108	129	116
806	—	—	—	—	—	—	—	148	203	—	—	—	145	—	—	—	—	—	143	132	108	108	128	126
830	—	—	—	—	—	—	—	141	203	66	111	109	136	—	38	46	—	—	147	135	112	119	130	118
832	—	—	—	—	—	—	—	147	196	60	108	117	146	105	42	47	123	556	143	131	108	109	133	121
853	—	—	—	—	—	—	—	138	193	—	—	104	133	—	—	—	—	—	147	—	—	—	—	—
883	—	—	—	—	—	—	—	144	196	61	106	114	139	—	40	43	—	—	142	—	—	—	—	—
891	—	—	—	—	—	—	—	145	189	66	116	105	134	—	35	46	—	—	143	—	—	—	—	—
905	—	—	—	—	—	—	—	145	194	66	115	104	135	—	35	48	—	—	147	—	—	—	—	—
907	—	—	—	—	—	—	—	146	197	70	127	108	139	—	39	49	—	—	142	133	111	115	140	113
941	—	—	—	—	—	—	—	141	198	69	113	113	138	—	38	48	—	—	141	—	—	—	—	—
942	—	—	—	—	—	—	—	141	187	59	100	108	134	94	37	45	—	—	141	127	110	110	132	119
943	—	—	—	—	—	—	—	146	194	72	112	108	141	—	34	48	—	—	148	—	—	—	—	—
949	—	—	—	—	—	—	—	139	205	65	113	110	133	—	41	50	—	—	148	—	—	—	—	—
950	—	—	—	—	—	—	—	146	196	66	116	110	142	—	39	43	—	—	143	—	—	—	—	—
983	—	—	—	—	—	—	—	153	200	67	110	102	137	—	38	48	—	—	146	—	—	—	—	—
991	—	—	—	—	—	—	—	145	196	62	108	106	136	—	38	46	—	—	149	—	—	—	—	—
999	—	—	—	—	—	—	—	151	199	68	108	110	141	—	38	53	—	—	154	143	118	109	121	118
1000	—	—	—	—	—	—	—	143	200	67	112	111	139	—	39	49	—	—	146	134	112	117	133	120

KALIUBIA.

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
119	1727	—	—	—	—	—	—	142	192	61	111	110	136	100	38	47	116	535	—	—	—	—	—	—
216	1708	—	—	—	—	—	—	140	185	64	112	103	134	92	32	51	106	526	—	—	—	—	—	—
255	1735	—	—	—	—	—	—	153	205	71	—	—	143	—	34	55	—	—	—	—	—	—	—	—
366	1697	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
370	1721	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
373	1730	1393	1056	785	920	454	65	146	195	68	—	—	137	—	35	46	—	—	—	—	—	—	—	—
404	1733	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
412	1749	1316	993	764	812	423	60	145	196	60	—	—	139	—	43	43	—	—	—	—	—	—	—	—
450	1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
467	1704	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
483	1732	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
532	—	—	—	—	—	—	—	143	202	66	109	109	142	101	35	45	116	555	149	136	112	114	124	117
634	—	—	—	—	—	—	—	141	189	64	112	96	129	—	35	43	—	—	142	—	—	—	—	—
641	—	—	—	—	—	—	—	141	192	63	106	110	136	—	38	46	—	—	148	—	—	—	—	—
699	—	—	—	—	—	—	—	145	202	67	116	105	134	—	37	47	—	—	145	—	—	—	—	—
741	—	—	—	—	—	—	—	140	195	63	101	106	133	—	—	—	—	—	147	138	113	108	127	121
758	—	—	—	—	—	—	—	147	195	65	112	109	134	—	37	49	—	—	151	134	109	108	129	121
760	—	—	—	—	—	—	—	137	187	61	111	104	128	—	38	46	—	—	154	—	—	—	—	—
764	—	—	—	—	—	—	—	147	199	58	102	108	141	—	35	41	—	—	153	—	—	—	—	—
771	—	—	—	—	—	—	—	143	193	—	—	—	—	—	—	—	—	—	152	133	111	112	127	120
784	—	—	—	—	—	—	—	143	203	—	—	—	139	—	—	—	—	—	149	134	112	111	136	125
818	—	—	—	—	—	—	—	141	182	64	107	107	136	—	—	—	—	—	135	125	104	109	122	113
869	—	—	—	—	—	—	—	135	191	65	109	106	133	—	33	46	—	—	144	—	—	—	—	—
897	—	—	—	—	—	—	—	149	194	63	104	115	149	105	37	42	121	—	148	132	115	117	132	119

KALIUBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
899	—	—	—	—	—	—	—	143	182	60	103	113	136	—	36	41	—	—	145	134	105	110	126	107
908	—	—	—	—	—	—	—	148	194	63	108	111	141	—	35	44	—	—	148	135	105	103	127	119
919	—	—	—	—	—	—	—	143	183	63	109	104	139	—	33	44	110	—	134	129	104	111	130	107
975	—	—	—	—	—	—	—	147	196	67	116	107	136	102	34	49	122	—	151	137	107	110	125	127

SHARKIA.

6	1710	—	—	—	—	—	—	143	199	64	111	105	129	103	38	48	122	552	—	—	—	—	—	—
23	1650	—	—	—	—	—	—	144	204	64	119	111	136	108	38	44	119	572	—	—	—	—	—	—
36	1723	—	—	—	—	—	—	143	189	63	116	107	136	106	40	52	113	533	—	—	—	—	—	—
100	1726	—	—	—	—	—	—	155	194	63	124	116	148	104	40	53	120	556	—	—	—	—	—	—
132	1737	—	—	—	—	—	—	147	190	62	113	106	136	103	34	44	113	547	—	—	—	—	—	—
144	1704	—	—	—	—	—	—	142	199	66	119	99	136	98	37	54	115	560	—	—	—	—	—	—
223	1713	—	—	—	—	—	—	148	200	65	118	112	145	107	36	46	129	556	—	—	—	—	—	—
288	1715	—	—	—	—	—	—	153	189	63	—	—	146	—	37	48	—	—	—	—	—	—	—	—
289	1734	—	—	—	—	—	—	147	196	67	—	—	141	—	37	46	—	—	—	—	—	—	—	—
523	—	—	—	—	—	—	—	140	188	65	109	98	130	93	34	47	105	530	—	—	—	—	—	—
635	—	—	—	—	—	—	—	141	195	65	112	103	136	—	37	45	—	—	147	—	—	—	—	—
678	—	—	—	—	—	—	—	135	197	64	108	105	137	—	37	49	—	—	147	—	—	—	—	—
766	—	—	—	—	—	—	—	151	205	69	118	113	138	—	38	54	—	—	159	—	—	—	—	—
789	—	—	—	—	—	—	—	146	194	—	—	—	133	—	—	—	—	—	149	138	114	111	133	116
895	—	—	—	—	—	—	—	147	200	64	109	114	138	—	39	46	—	—	141	—	—	—	—	—
932	—	—	—	—	—	—	—	140	201	64	110	106	133	—	38	45	—	—	145	134	114	117	129	122

SHARKIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
939	—	—	—	—	—	—	—	143	197	68	113	108	136	99	33	50	116	—	145	134	109	108	131	119
958	—	—	—	—	—	—	—	142	197	72	122	108	134	102	39	50	—	—	145	138	113	111	125	153
959	—	—	—	—	—	—	—	152	203	68	115	114	143	98	35	46	118	—	141	135	113	114	132	119
993	—	—	—	—	—	—	—	149	198	66	108	101	137	102	32	47	121	—	146	128	106	108	121	127

BAHEIRA.

1	1785	1448	1083	796	968	500	78	149	200	68	110	107	144	107	50	34	115	561	—	—	—	—	—	—
17	1730	—	—	—	—	—	—	148	199	66	114	113	138	108	34	48	120	555	—	—	—	—	—	—
28	1725	—	—	—	—	—	—	141	198	56	—	97	136	97	34	47	112	555	—	—	—	—	—	—
51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
80	1675	—	—	—	—	—	—	143	198	65	114	99	131	104	34	48	123	555	—	—	—	—	—	—
82	1750	—	—	—	—	—	—	141	199	78	124	112	137	106	37	53	118	553	—	—	—	—	—	—
141	1690	—	—	—	—	—	—	143	207	67	111	107	133	100	35	47	115	556	—	—	—	—	—	—
148	1788	—	—	—	—	—	—	137	195	70	124	108	134	105	34	47	115	533	—	—	—	—	—	—
167	1708	—	—	—	—	—	—	147	192	70	113	96	132	100	33	52	117	542	—	—	—	—	—	—
202	1618	—	—	—	—	—	—	141	189	66	112	98	133	99	34	50	114	533	—	—	—	—	—	—
225	1772	—	—	—	—	—	—	142	211	73	122	110	143	104	36	52	—	—	—	—	—	—	—	—
228	—	—	—	—	—	—	—	150	202	74	118	105	140	103	35	53	116	—	—	—	—	—	—	—
248	1732	—	—	—	—	—	—	143	194	76	129	106	134	102	35	53	120	542	—	—	—	—	—	—
259	1714	—	—	—	—	—	—	140	186	69	—	—	133	—	33	51	—	—	—	—	—	—	—	—
266	1730	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
277	1732	1378	1051	790	930	478	70	152	205	73	—	114	139	—	36	52	—	—	—	—	—	—	—	—

BAHEIRA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
280	1713	—	—	—	—	—	—	149	197	64	—	—	135	—	37	46	—	—	—	—	—	—	—	—
303	1780	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
307	1744	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
310	1730	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
315	1747	1422	1056	779	922	450	78	152	189	63	—	—	137	—	33	47	—	—	—	—	—	—	—	—
341	1703	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
388	1747	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
407	1724	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
463	1715	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
471	1707	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
480	1702	—	—	—	—	—	—	147	189	68	—	—	137	—	37	53	—	—	—	—	—	—	—	—
489	1704	—	—	—	—	—	—	138	183	59	—	—	133	—	34	44	—	—	—	—	—	—	—	—
508	—	—	—	—	—	—	—	142	191	68	111	109	133	—	35	47	—	—	—	—	—	—	—	—
515	—	—	—	—	—	—	—	138	190	68	119	106	132	98	36	45	116	528	—	—	—	—	—	—
525	—	—	—	—	—	—	—	139	202	66	114	108	137	—	38	49	—	—	—	—	—	—	—	—
643	—	—	—	—	—	—	—	149	194	65	107	109	139	—	37	50	—	—	144	—	—	—	—	—
646	—	—	—	—	—	—	—	150	201	69	122	115	140	—	42	50	—	—	152	—	—	—	—	—
675	—	—	—	—	—	—	—	143	206	71	112	105	134	—	33	51	—	—	150	—	—	—	—	—
677	—	—	—	—	—	—	—	143	204	71	119	107	139	—	38	48	—	—	148	—	—	—	—	—
686	—	—	—	—	—	—	—	145	206	69	121	113	141	—	36	48	—	—	148	—	—	—	—	—
713	—	—	—	—	—	—	—	148	190	—	—	—	—	—	—	—	—	—	151	138	111	106	121	121
715	—	—	—	—	—	—	—	149	200	61	109	115	137	—	39	45	—	—	146	—	—	—	—	—
745	—	—	—	—	—	—	—	145	188	65	108	107	136	—	39	42	—	—	153	139	110	108	121	120
748	—	—	—	—	—	—	—	151	190	64	108	112	144	—	35	44	—	—	148	135	111	112	134	111
749	—	—	—	—	—	—	—	142	191	65	112	98	135	—	34	47	—	—	146	130	107	107	132	119

BAHEIRA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
750	—	—	—	—	—	—	—	150	203	—	—	—	—	—	—	—	—	—	151	135	109	106	129	129
809	—	—	—	—	—	—	—	140	190	69	112	107	137	—	—	—	—	—	142	132	108	116	130	114
819	—	—	—	—	—	—	—	147	195	67	116	110	137	—	37	46	—	—	144	137	116	116	129	113
822	—	—	—	—	—	—	—	146	193	69	118	—	138	—	—	—	—	—	143	133	105	103	128	124
833	—	—	—	—	—	—	—	143	195	65	112	109	142	—	38	47	—	—	145	132	107	113	137	117
838	—	—	—	—	—	—	—	141	191	66	114	106	134	—	34	51	—	—	138	131	110	109	127	112
841	—	—	—	—	—	—	—	150	205	64	111	109	144	—	39	46	—	—	151	139	113	109	123	123
845	—	—	—	—	—	—	—	142	201	64	110	112	135	—	41	50	—	—	149	129	106	109	130	128
848	—	—	—	—	—	—	—	139	196	57	104	101	134	—	35	45	—	—	142	129	107	106	126	117
887	—	—	—	—	—	—	—	148	205	64	103	110	137	—	35	44	—	—	154	—	—	—	—	—
913	—	—	—	—	—	—	—	141	200	63	106	108	137	—	36	46	—	—	146	131	107	108	127	126
914	—	—	—	—	—	—	—	138	203	71	113	110	140	—	36	46	—	—	147	—	—	—	—	—
934	—	—	—	—	—	—	—	150	195	68	116	115	141	—	35	47	—	—	151	—	—	—	—	—
961	—	—	—	—	—	—	—	144	196	72	118	113	135	96	34	52	114	—	145	131	111	110	130	118
977	—	—	—	—	—	—	—	140	196	67	118	110	138	106	34	50	123	—	145	130	114	121	139	120
981	—	—	—	—	—	—	—	145	189	63	110	114	139	—	36	46	—	—	142	127	106	107	127	115
984	—	—	—	—	—	—	—	151	201	64	109	121	141	—	34	49	—	—	140	—	—	—	—	—
987	—	—	—	—	—	—	—	137	205	71	118	108	137	105	39	48	118	—	151	136	113	115	128	130
1003	—	—	—	—	—	—	—	140	196	72	116	107	138	—	34	51	—	—	142	132	110	114	125	121

GHARBIA.

10	1677	—	—	—	—	—	—	143	192	63	110	112	139	106	36	49	111	539	—	—	—	—	—	—
18	1715	—	—	—	—	—	—	142	186	65	114	108	136	108	34	49	121	525	—	—	—	—	—	—
20	1719	—	—	—	—	—	—	149	197	66	118	110	140	105	38	53	117	550	—	—	—	—	—	—

GHARBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
24	1752	—	—	—	—	—	—	144	193	63	112	97	133	104	42	48	116	540	—	—	—	—	—	—
27	1700	—	—	—	—	—	—	153	185	60	108	103	138	106	38	47	116	542	—	—	—	—	—	—
30	1690	—	—	—	—	—	—	153	185	70	119	108	139	104	41	54	111	549	—	—	—	—	—	—
47	1766	—	—	—	—	—	—	149	183	63	108	93	136	103	34	52	114	534	—	—	—	—	—	—
50	1690	—	—	—	—	—	—	151	197	77	124	111	145	111	38	53	115	558	—	—	—	—	—	—
53	1715	—	—	—	—	—	—	151	196	69	122	116	143	110	37	52	120	558	—	—	—	—	—	—
60	1700	—	—	—	—	—	—	136	192	63	111	100	136	100	36	47	113	542	—	—	—	—	—	—
63	1702	—	—	—	—	—	—	144	179	64	114	102	133	98	36	51	108	532	—	—	—	—	—	—
66	1723	—	—	—	—	—	—	147	191	55	109	113	143	106	45	40	113	542	—	—	—	—	—	—
84	1680	—	—	—	—	—	—	149	205	64	114	101	141	104	35	49	118	572	—	—	—	—	—	—
89	1744	—	—	—	—	—	—	139	192	61	111	94	131	96	36	45	115	533	—	—	—	—	—	—
94	1683	—	—	—	—	—	—	147	199	72	121	109	142	109	38	55	114	568	—	—	—	—	—	—
95	1730	—	—	—	—	—	—	146	200	68	118	114	147	109	39	47	121	556	—	—	—	—	—	—
111	1744	—	—	—	—	—	—	143	194	62	113	106	135	105	39	46	123	537	—	—	—	—	—	—
114	1708	—	—	—	—	—	—	147	202	79	127	99	139	105	43	54	123	571	—	—	—	—	—	—
117	1715	—	—	—	—	—	—	140	192	68	121	99	138	108	38	51	114	542	—	—	—	—	—	—
134	1700	—	—	—	—	—	—	146	198	59	106	101	140	100	38	48	116	556	—	—	—	—	—	—
135	1724	—	—	—	—	—	—	144	193	69	116	98	135	100	34	47	116	541	—	—	—	—	—	—
149	1740	—	—	—	—	—	—	145	198	66	123	97	143	103	41	48	113	555	—	—	—	—	—	—
152	1732	—	—	—	—	—	—	151	188	65	118	105	143	100	34	51	110	548	—	—	—	—	—	—
164	1713	—	—	—	—	—	—	143	181	63	108	116	137	100	33	49	114	520	—	—	—	—	—	—
170	1730	—	—	—	—	—	—	140	196	72	125	94	133	98	35	53	113	550	—	—	—	—	—	—
178	1704	—	—	—	—	—	—	154	196	67	118	102	144	101	36	52	113	570	—	—	—	—	—	—
185	1722	—	—	—	—	—	—	146	195	67	117	105	136	99	32	48	113	548	—	—	—	—	—	—
190 *bis*	—	—	—	—	—	—	—	143	186	68	115	96	130	100	35	50	114	—	—	—	—	—	—	—

GHARBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
193	1702	—	—	—	—	—	—	146	185	64	112	104	133	96	33	50	110	537	—	—	—	—	—	—
194	1700	—	—	—	—	—	—	153	200	69	126	103	142	97	32	52	115	565	—	—	—	—	—	—
195	1710	—	—	—	—	—	—	150	192	62	118	108	139	95	33	54	117	553	—	—	—	—	—	—
196	1692	—	—	—	—	—	—	151	194	70	124	116	148	112	36	55	126	558	—	—	—	—	—	—
204	1708	—	—	—	—	—	—	137	186	62	110	106	136	101	36	45	115	528	—	—	—	—	—	—
212	1768	—	—	—	—	—	—	145	197	64	114	116	141	111	37	51	126	555	—	—	—	—	—	—
215	1720	—	—	—	—	—	—	139	189	66	113	110	136	101	34	51	113	—	—	—	—	—	—	—
218	1713	—	—	—	—	—	—	142	191	63	110	92	130	94	35	53	110	—	—	—	—	—	—	—
219	1713	—	—	—	—	—	—	141	195	62	118	110	133	104	39	47	120	544	—	—	—	—	—	—
226	1694	—	—	—	—	—	—	155	197	69	128	114	148	109	41	52	123	—	—	—	—	—	—	—
232	1763	—	—	—	—	—	—	145	193	64	113	113	142	103	38	52	117	—	—	—	—	—	—	—
245	—	—	—	—	—	—	—	148	191	63	117	100	134	90	40	53	108	—	—	—	—	—	—	—
250	—	—	—	—	—	—	—	142	197	68	118	107	133	93	34	49	114	550	—	—	—	—	—	—
252	1737	1400	1043	790	905	443	80	141	189	69	—	—	132	—	37	54	—	—	—	—	—	—	—	—
273	1722	1375	1055	794	930	450	70	143	188	67	—	—	128	—	34	52	—	—	—	—	—	—	—	—
275	1785	1450	1135	840	950	490	70	148	193	62	—	—	140	—	39	47	—	—	—	—	—	—	—	—
283	1710	—	—	—	—	—	—	143	201	65	—	—	145	—	39	47	—	—	—	—	—	—	—	—
296	1700	1371	1053	775	891	422	68	146	183	65	—	—	144	—	35	51	—	—	—	—	—	—	—	—
297	1695	1345	1020	748	860	439	57	145	197	68	—	—	137	—	37	52	—	—	—	—	—	—	—	—
316	1735	1419	1077	815	928	455	67	146	198	67	—	—	142	—	36	50	—	—	—	—	—	—	—	—
317	1687	—	—	—	—	—	—	140	193	65	—	—	132	—	36	46	—	—	—	—	—	—	—	—
325	1673	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
331	1628	1304	985	740	840	432	68	140	190	69	—	—	136	—	32	47	—	—	—	—	—	—	—	—
332	1656	1353	1043	785	880	415	58	144	190	64	—	—	141	—	33	45	—	—	—	—	—	—	—	—
333	1583	1265	948	694	812	417	65	143	191	60	—	—	133	—	35	46	—	—	—	—	—	—	—	—

GHARBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
340	1705	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
347	1745	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
350	1688	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
367	1725	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
368	1725	1395	1070	814	915	454	68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
372	1722	1390	1040	792	940	474	60	139	185	68	—	—	136	—	37	48	—	—	—	—	—	—	—	—
374	1705	1388	1036	772	925	470	58	135	185	68	—	—	132	—	31	53	—	—	—	—	—	—	—	—
396	1710	—	—	—	—	—	—	142	191	69	—	—	138	—	33	45	—	—	—	—	—	—	—	—
402	1727	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
413	1772	—	—	—	—	—	—	145	—	72	—	—	139	—	33	52	—	—	—	—	—	—	—	—
427	1718	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
429	1710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
431	1747	1394	1060	800	898	455	63	144	197	67	—	—	137	—	38	51	—	—	—	—	—	—	—	—
441	1705	1357	1012	759	885	450	60	139	200	66	—	—	137	—	34	46	—	—	—	—	—	—	—	—
442	1744	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
447	1839	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
451	1763	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
453	1679	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
464	1751	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
472	1776	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
473	1698	—	—	—	—	—	—	158	190	66	—	—	151	—	41	53	—	—	—	—	—	—	—	—
486	1699	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
493	1726	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
495	1714	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
497	1690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

GHARBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
500	1724	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
504	—	—	—	—	—	—	—	146	189	67	117	113	136	100	33	46	114	533	147	129	108	112	129	107
509	—	—	—	—	—	—	—	135	195	64	113	104	135	—	40	46	—	—	—	—	—	—	—	—
518	—	—	—	—	—	—	—	150	190	67	120	107	134	97	35	49	112	550	—	—	—	—	—	—
524	—	—	—	—	—	—	—	144	200	68	123	109	142	—	36	51	—	—	—	—	—	—	—	—
533	—	—	—	—	—	—	—	153	204	75	126	108	144	105	35	54	127	575	159	137	114	115	125	114
551	—	—	—	—	—	—	—	152	202	67	116	112	148	—	36	45	—	—	149	—	—	—	—	—
553	—	—	—	—	—	—	—	140	201	72	115	108	129	—	38	50	—	—	143	—	—	—	—	—
556	—	—	—	—	—	—	—	146	191	66	113	106	135	—	37	46	—	—	146	—	—	—	—	—
577	—	—	—	—	—	—	—	142	195	64	114	108	144	—	33	47	—	—	153	—	—	—	—	—
594	—	—	—	—	—	—	—	151	193	65	116	106	150	107	36	43	119	552	154	137	113	109	129	117
606	—	—	—	—	—	—	—	150	197	65	113	109	140	—	31	47	—	—	141	133	112	114	130	119
610	—	—	—	—	—	—	—	152	189	72	124	104	133	—	34	51	—	—	153	—	—	—	—	—
622	—	—	—	—	—	—	—	148	189	67	119	99	133	—	34	47	—	—	150	—	—	—	—	—
627	—	—	—	—	—	—	—	141	186	58	105	104	139	—	35	50	—	—	144	—	—	—	—	—
654	—	—	—	—	—	—	—	151	202	67	110	108	137	100	38	43	119	561	153	139	115	117	132	115
657	—	—	—	—	—	—	—	141	203	70	117	111	145	—	40	47	—	—	151	138	114	115	133	124
660	—	—	—	—	—	—	—	141	199	72	122	106	132	—	39	51	—	—	143	132	107	116	139	121
667	—	—	—	—	—	—	—	135	190	66	113	103	126	—	34	47	—	—	143	—	—	—	—	—
669	—	—	—	—	—	—	—	149	194	70	117	107	140	—	34	50	—	—	145	—	—	—	—	—
685	—	—	—	—	—	—	—	150	205	64	115	110	139	—	35	48	—	—	145	—	—	—	—	—
687	—	—	—	—	—	—	—	142	199	67	114	104	136	—	36	48	—	—	147	—	—	—	—	—
688	—	—	—	—	—	—	—	146	195	71	116	108	138	—	36	50	—	—	142	—	—	—	—	—
697	—	—	—	—	—	—	—	138	194	65	111	109	129	—	41	41	—	—	145	—	—	—	—	—
716	—	—	—	—	—	—	—	145	198	—	—	—	—	—	—	—	—	—	142	134	115	116	138	120

GHARBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	20	31	32	33	34	35
727	—	—	—	—	—	—	—	146	196	—	—	—	—	—	—	—	—	—	145	135	112	110	129	116
728	—	—	—	—	—	—	—	144	197	—	—	—	—	—	—	—	—	—	147	135	115	116	133	116
737	—	—	—	—	—	—	—	151	201	58	106	109	135	—	33	41	—	—	149	141	113	110	130	122
744	—	—	—	—	—	—	—	144	204	70	122	111	134	—	35	50	—	—	143	138	115	121	139	126
746	—	—	—	—	—	—	—	141	193	66	113	103	135	—	—	—	—	—	149	137	110	110	127	120
751	—	—	—	—	—	—	—	143	193	66	111	99	134	—	—	—	—	—	151	134	109	106	124	124
797	—	—	—	—	—	—	—	155	193	—	—	—	141	—	—	—	—	—	154	138	115	111	133	118
798	—	—	—	—	—	—	—	139	183	—	—	—	128	—	—	—	—	—	134	123	107	112	131	105
802	—	—	—	—	—	—	—	147	197	—	—	—	142	—	—	—	—	—	153	139	113	115	127	128
810	—	—	—	—	—	—	—	143	187	68	114	106	139	—	—	—	—	—	141	123	107	109	125	112
815	—	—	—	—	—	—	—	148	196	65	113	104	141	—	36	46	—	—	145	135	105	113	133	123
820	—	—	—	—	—	—	—	144	189	72	115	108	136	—	36	52	—	—	142	132	109	111	135	112
823	—	—	—	—	—	—	—	151	200	71	117	115	145	106	33	53	123	—	143	135	112	113	135	117
825	—	—	—	—	—	—	—	145	186	63	111	—	133	—	38	50	—	—	150	—	—	—	—	—
834	—	—	—	—	—	—	—	144	194	67	111	102	130	96	32	48	108	542	145	132	106	106	128	116
844	—	—	—	—	—	—	—	142	198	66	114	114	141	—	33	48	—	—	151	—	—	—	—	—
854	—	—	—	—	—	—	—	145	197	66	116	120	145	—	35	45	—	—	143	132	111	113	133	115
867	—	—	—	—	—	—	—	149	195	63	116	115	143	—	38	46	—	—	146	—	—	—	—	—
871	—	—	—	—	—	—	—	146	197	64	112	103	143	—	36	45	—	—	146	—	—	—	—	—
874	—	—	—	—	—	—	—	144	194	71	121	105	139	—	30	51	—	—	140	—	—	—	—	—
877	—	—	—	—	—	—	—	142	196	64	106	114	139	—	37	49	—	—	140	—	—	—	—	—
886	—	—	—	—	—	—	—	142	189	68	116	106	138	—	—	—	—	—	142	—	—	—	—	—
925	—	—	—	—	—	—	—	146	194	64	112	106	135	—	38	45	—	—	139	—	—	—	—	—
931	—	—	—	—	—	—	—	149	191	68	112	107	137	—	36	44	—	—	142	—	—	—	—	—
936	—	—	—	—	—	—	—	143	199	68	116	113	138	101	41	49	116	—	145	132	106	114	131	126

GHARBIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
957	—	—	—	—	—	—	—	146	196	63	111	117	138	102	38	46	124	—	147	139	116	114	131	116
968	—	—	—	—	—	—	—	144	195	62	103	113	142	—	38	47	—	—	144	—	—	—	—	—
970	—	—	—	—	—	—	—	148	198	66	111	104	142	—	—	—	—	—	140	—	—	—	—	—
976	—	—	—	—	—	—	—	141	194	67	115	106	139	—	—	—	—	—	149	132	110	114	134	122
990	—	—	—	—	—	—	—	141	190	69	114	108	130	101	35	51	119	—	146	126	103	106	131	125
995	—	—	—	—	—	—	—	137	189	69	120	113	136	102	35	46	118	—	136	131	115	116	140	107

DAḲAHLIA.

2	1717	1406	1043	815	1090	410	28	135	186	65	106	114	132	107	36	50	120	528	—	—	—	—	—	—
4	1793	1430	1094	924	957	469	27	146	203	78	129	105	138	116	35	54	131	572	—	—	—	—	—	—
7	1734	—	—	—	—	—	—	156	190	69	114	104	138	114	31	52	123	563	—	—	—	—	—	—
8	1720	—	—	—	—	—	—	148	202	75	133	117	138	107	38	57	120	565	—	—	—	—	—	—
12	1750	—	—	—	—	—	—	139	185	63	113	108	134	109	36	49	113	530	—	—	—	—	—	—
14	1751	—	—	—	—	—	—	144	197	72	126	118	143	108	39	56	119	552	—	—	—	—	—	—
15	1732	—	—	—	—	—	—	147	190	64	118	123	143	113	36	48	118	542	—	—	—	—	—	—
16	1710	—	—	—	—	—	—	140	193	69	118	107	137	108	34	48	113	535	—	—	—	—	—	—
19	1718	—	—	—	—	—	—	157	196	61	107	114	146	106	39	43	114	566	—	—	—	—	—	—
22	1686	—	—	—	—	—	—	140	190	63	113	104	142	112	35	44	124	538	—	—	—	—	—	—
32	1730	—	—	—	—	—	—	147	190	73	119	102	143	104	33	45	113	547	—	—	—	—	—	—
39	1753	—	—	—	—	—	—	150	194	65	123	110	144	104	37	50	118	545	—	—	—	—	—	—
43	1725	—	—	—	—	—	—	139	190	68	119	97	136	105	35	53	118	535	—	—	—	—	—	—
45	1714	—	—	—	—	—	—	141	188	73	124	99	132	105	39	58	116	532	—	—	—	—	—	—
67	1755	—	—	—	—	—	—	146	199	67	118	109	136	101	38	53	115	558	—	—	—	—	—	—

DAKAHLIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
68	1700	—	—	—	—	—	—	146	195	58	108	106	139	105	41	48	125	550	—	—	—	—	—	—
81	1770	—	—	—	—	—	—	148	203	65	121	105	138	100	37	47	113	568	—	—	—	—	—	—
85	1707	—	—	—	—	—	—	142	199	70	126	96	136	103	36	54	117	549	—	—	—	—	—	—
97	1718	—	—	—	—	—	—	143	190	64	109	103	137	101	37	49	112	534	—	—	—	—	—	—
102	1745	—	—	—	—	—	—	140	189	63	108	103	134	99	36	50	114	526	—	—	—	—	—	—
113	1693	—	—	—	—	—	—	150	195	65	118	105	144	109	36	47	117	552	—	—	—	—	—	—
116	1710	—	—	—	—	—	—	150	195	64	114	106	139	102	37	53	120	549	—	—	—	—	—	—
140	1790	—	—	—	—	—	—	150	204	69	124	101	136	99	34	51	114	571	—	—	—	—	—	—
142	1701	—	—	—	—	—	—	147	200	65	109	109	136	98	37	47	110	559	—	—	—	—	—	—
150	1680	—	—	—	—	—	—	151	189	59	105	106	139	99	37	50	108	550	—	—	—	—	—	—
151	1760	—	—	—	—	—	—	147	197	69	121	111	146	105	38	53	121	560	—	—	—	—	—	—
158	1708	—	—	—	—	—	—	145	198	67	119	113	137	102	37	52	118	550	—	—	—	—	—	—
159	1704	—	—	—	—	—	—	145	192	68	120	107	141	100	39	52	114	543	—	—	—	—	—	—
161	1723	—	—	—	—	—	—	145	203	72	124	101	137	102	37	53	118	552	—	—	—	—	—	—
175	1725	—	—	—	—	—	—	146	197	62	114	—	142	102	34	50	112	554	—	—	—	—	—	—
181	1705	—	—	—	—	—	—	151	187	71	120	114	150	112	37	52	124	542	—	—	—	—	—	—
184	1758	—	—	—	—	—	—	145	197	65	116	98	137	103	33	51	120	552	—	—	—	—	—	—
221	1755	—	—	—	—	—	—	138	196	69	124	106	133	102	34	51	118	542	—	—	—	—	—	—
233	1739	—	—	—	—	—	—	146	199	63	117	100	139	103	34	47	122	—	—	—	—	—	—	—
241	—	—	—	—	—	—	—	153	189	65	125	109	147	100	36	53	113	—	—	—	—	—	—	—
249	1707	—	—	—	—	—	—	131	189	65	113	94	128	93	32	52	106	521	—	—	—	—	—	—
279	1732	—	—	—	—	—	—	150	200	64	—	—	137	—	36	47	—	—	—	—	—	—	—	—
282	1717	—	—	—	—	—	—	143	196	63	—	—	142	—	35	50	—	—	—	—	—	—	—	—
290	1737	—	—	—	—	—	—	152	201	72	—	—	140	—	34	55	—	—	—	—	—	—	—	—
298	1720	—	—	—	—	—	—	141	190	58	—	—	139	—	33	47	—	—	—	—	—	—	—	—

DAKAHLIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
311	1736	1410	1106	828	923	478	70	152	191	75	—	—	140	—	34	54	—	—	—	—	—	—	—	—
319	1715	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
320	1721	—	—	—	—	—	—	149	191	66	—	—	138	—	35	46	—	—	—	—	—	—	—	—
334	1766	1374	1004	756	860	460	73	146	200	66	—	—	135	—	34	47	—	—	—	—	—	—	—	—
345	1695	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
354	1741	1405	1061	800	913	483	70	139	201	74	—	—	136	—	43	52	—	—	—	—	—	—	—	—
356	1736	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
357	1788	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
359	1701	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
360	1798	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
377	1697	1350	1030	775	920	460	69	144	192	61	—	—	135	—	34	43	—	—	—	—	—	—	—	—
380	1760	—	—	—	—	—	—	138	192	68	—	—	130	—	36	48	—	—	—	—	—	—	—	—
387	1792	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
393	1730	1385	1052	804	915	480	69	148	202	66	—	—	139	—	40	49	—	—	—	—	—	—	—	—
428	1710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
439	1747	—	—	—	—	—	—	144	201	68	—	—	136	—	36	46	—	—	—	—	—	—	—	—
446	1700	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
452	1673	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
469	1717	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
478	1690	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
479	1750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
481	1719	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
517	—	—	—	—	—	—	—	147	200	68	124	105	137	101	34	49	116	556	148	137	113	112	129	118
519	—	—	—	—	—	—	—	145	199	65	118	106	136	100	33	48	111	558	145	138	107	108	127	132
522	—	—	—	—	—	—	—	143	198	72	118	106	138	102	35	55	120	548	143	132	109	108	124	128

DAḲAHLIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
526	—	—	—	—	—	—	—	147	198	70	119	112	137	—	34	49	—	—	—	—	—	—	—	—
527	—	—	—	—	—	—	—	148	188	68	115	103	146	—	40	52	—	—	—	—	—	—	—	—
528	—	—	—	—	—	—	—	146	193	72	120	113	138	—	36	41	—	—	—	—	—	—	—	—
530	—	—	—	—	—	—	—	144	185	69	112	108	142	—	35	46	—	—	—	—	—	—	—	—
550	—	—	—	—	—	—	—	144	191	70	114	106	137	98	29	50	112	537	—	—	—	—	—	—
571	—	—	—	—	—	—	—	149	189	67	112	107	141	—	47	—	—	—	146	—	—	—	—	—
573	—	—	—	—	—	—	—	144	189	67	111	113	136	—	39	47	—	—	148	—	—	—	—	—
575	—	—	—	—	—	—	—	135	189	64	108	105	135	—	36	45	—	—	138	—	—	—	—	—
583	—	—	—	—	—	—	—	144	195	68	114	106	134	—	35	50	—	—	150	—	—	—	—	—
584	—	—	—	—	—	—	—	140	192	67	116	106	133	—	35	48	—	—	145	—	—	—	—	—
590	—	—	—	—	—	—	—	138	188	63	108	104	135	—	36	46	—	—	141	—	—	—	—	—
595	—	—	—	—	—	—	—	147	199	67	120	105	135	—	32	49	—	—	154	—	—	—	—	—
596	—	—	—	—	—	—	—	—	—	73	120	101	134	—	30	54	—	—	—	—	—	—	—	—
597	—	—	—	—	—	—	—	140	190	66	116	111	143	—	36	46	—	—	150	—	—	—	—	—
598	—	—	—	—	—	—	—	147	188	62	105	97	135	97	30	44	112	537	156	138	109	103	121	118
599	—	—	—	—	—	—	—	143	190	66	116	106	135	105	35	45	119	542	144	133	107	107	124	119
601	—	—	—	—	—	—	—	147	94	70	115	110	133	—	36	49	—	—	143	132	113	121	140	114
608	—	—	—	—	—	—	—	143	193	65	109	106	133	—	38	48	—	—	147	—	—	—	—	—
609	—	—	—	—	—	—	—	144	186	66	110	99	136	—	31	48	—	—	148	—	—	—	—	—
631	—	—	—	—	—	—	—	151	192	64	109	100	143	—	32	49	—	—	148	—	—	—	—	—
645	—	—	—	—	—	—	—	143	186	67	111	103	138	—	33	52	—	—	154	—	—	—	—	—
659	—	—	—	—	—	—	—	141	191	62	109	107	128	—	30	46	—	—	143	131	105	106	124	113
661	—	—	—	—	—	—	—	150	184	60	101	114	141	—	36	46	—	—	143	128	107	103	123	115
662	—	—	—	—	—	—	—	147	203	66	110	113	146	—	40	49	—	—	145	132	111	111	131	110
671	—	—	—	—	—	—	—	142	192	62	112	105	135	—	36	45	—	—	144	—	—	—	—	—

DAḲAHLIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
673	—	—	—	—	—	—	—	140	188	66	112	110	139	—	36	50	—	—	145	—	—	—	—	—
681	—	—	—	—	—	—	—	138	196	67	114	112	140	—	37	45	—	—	147	—	—	—	—	—
730	—	—	—	—	—	—	—	144	188	—	—	—	—	—	—	—	—	—	148	131	111	111	122	113
738	—	—	—	—	—	—	—	145	178	71	114	113	137	—	37	52	—	—	143	129	110	113	125	106
776	—	—	—	—	—	—	—	144	181	—	—	—	135	—	—	—	—	—	142	127	105	108	124	114
795	—	—	—	—	—	—	—	147	187	—	—	—	141	—	—	—	—	—	142	135	113	109	128	119
812	—	—	—	—	—	—	—	141	199	70	114	108	137	—	37	50	—	—	153	133	111	109	127	120
817	—	—	—	—	—	—	—	144	187	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
821	—	—	—	—	—	—	—	144	188	65	116	—	133	—	—	—	—	—	142	130	109	110	128	113
826	—	—	—	—	—	—	—	142	185	72	121	107	133	—	31	53	—	—	147	132	109	116	135	115
828	—	—	—	—	—	—	—	147	194	73	121	108	143	—	37	51	—	—	149	131	109	116	134	118
829	—	—	—	—	—	—	—	148	198	54	98	113	141	—	39	43	—	—	141	—	—	—	—	—
839	—	—	—	—	—	—	—	144	191	75	116	111	141	—	35	54	—	—	142	133	112	121	137	115
840	—	—	—	—	—	—	—	140	202	67	111	107	145	—	43	43	—	—	149	136	115	123	136	121
842	—	—	—	—	—	—	—	142	191	68	113	101	132	93	34	51	112	—	151	131	107	104	123	122
843	—	—	—	—	—	—	—	141	187	67	115	113	131	—	34	49	—	—	142	126	106	110	127	114
849	—	—	—	—	—	—	—	144	186	72	122	105	137	—	34	49	—	—	144	131	107	105	123	116
865	—	—	—	—	—	—	—	145	177	63	108	108	135	—	36	46	—	—	135	—	—	—	—	—
876	—	—	—	—	—	—	—	143	186	65	112	101	136	—	38	49	—	—	141	—	—	—	—	—
881	—	—	—	—	—	—	—	140	185	70	120	109	135	—	37	49	—	—	140	—	—	—	—	—
889	—	—	—	—	—	—	—	148	200	68	112	107	137	—	40	49	—	—	145	—	—	—	—	—
890	—	—	—	—	—	—	—	145	191	68	109	106	133	—	33	50	—	—	137	—	—	—	—	—
901	—	—	—	—	—	—	—	137	200	60	106	112	136	—	38	43	—	—	142	—	—	—	—	—
923	—	—	—	—	—	—	—	146	208	69	120	107	139	—	34	48	—	—	148	—	—	—	—	—
927	—	—	—	—	—	—	—	147	191	66	121	106	146	—	38	48	—	—	143	—	—	—	—	—

DAḲAHLIA (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
930	—	—	—	—	—	—	—	147	202	67	113	107	136	—	41	48	—	—	150	—	—	—	—	—
940	—	—	—	—	—	—	—	147	194	70	113	111	138	—	—	—	—	—	152	—	—	—	—	—
947	—	—	—	—	—	—	—	144	182	63	107	109	136	—	34	46	—	—	139	—	—	—	—	—
948	—	—	—	—	—	—	—	141	185	69	114	105	133	—	36	46	—	—	149	—	—	—	—	—
960	—	—	—	—	—	—	—	141	196	70	120	107	132	—	38	46	—	—	148	—	—	—	—	—
969	—	—	—	—	—	—	—	149	189	70	121	100	130	—	36	44	—	—	154	—	—	—	—	—
978	—	—	—	—	—	—	—	146	193	70	119	109	132	—	33	45	—	—	139	132	108	110	138	117
998	—	—	—	—	—	—	—	145	198	63	109	113	141	105	38	46	120	—	143	129	112	114	136	118
1004	—	—	—	—	—	—	—	141	199	69	118	112	133	—	38	48	—	—	141	—	—	—	—	—

COPTS.

56	1700	—	—	—	—	—	—	138	188	66	114	98	131	104	33	50	116	527	—	—	—	—	—	—
65	1725	—	—	—	—	—	—	133	190	63	115	96	127	98	40	49	116	527	—	—	—	—	—	—
73	1590	—	—	—	—	—	—	147	193	62	118	103	133	98	35	47	108	554	—	—	—	—	—	—
121	1723	—	—	—	—	—	—	156	200	65	122	103	141	103	35	51	116	573	—	—	—	—	—	—
128	1778	—	—	—	—	—	—	142	197	62	109	101	131	99	41	47	117	547	—	—	—	—	—	—
172	1732	—	—	—	—	—	—	141	199	69	128	108	137	105	39	54	120	552	—	—	—	—	—	—
208	1735	—	—	—	—	—	—	142	188	64	109	101	130	100	33	49	110	531	—	—	—	—	—	—
220	1780	—	—	—	—	—	—	139	208	66	120	117	150	104	38	53	120	558	—	—	—	—	—	—
247	1707	—	—	—	—	—	—	141	196	63	110	102	136	98	39	49	113	547	—	—	—	—	—	—
262	1695	—	—	—	—	—	—	135	195	64	—	—	133	—	33	47	—	—	—	—	—	—	—	—
272	1707	1388	1060	800	872	450	70	145	197	60	—	—	139	—	36	47	—	—	—	—	—	—	—	—
295	1708	1378	1048	775	895	465	79	147	198	64	—	—	139	—	37	41	—	—	—	—	—	—	—	—

COPTS (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
321	1735	—	—	—	—	—	—	152	180	64	—	—	134	—	33	49	—	—	—	—	—	—	—	—
322	1687	—	—	—	—	—	—	149	187	62	—	—	132	—	35	44	—	—	—	—	—	—	—	—
324	1718	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
327	1722	—	—	—	—	—	—	136	194	68	—	—	136	—	36	50	—	—	—	—	—	—	—	—
328	1737	—	—	—	—	—	—	147	200	72	—	—	136	—	37	49	—	—	—	—	—	—	—	—
398	1715	1417	1061	798	924	465	58	145	182	64	—	—	135	—	35	50	—	—	—	—	—	—	—	—
400	1708	—	—	—	—	—	—	145	190	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
411	1752	1444	1104	840	925	465	61	142	186	67	—	—	133	—	31	49	—	—	—	—	—	—	—	—
448	1705	—	—	—	—	—	—	149	187	71	—	—	139	—	40	50	—	—	—	—	—	—	—	—
541	—	—	—	—	—	—	—	150	189	60	104	117	141	105	37	40	117	543	145	138	110	110	129	114
542	—	—	—	—	—	—	—	143	196	64	108	108	139	—	34	49	—	—	—	—	—	—	—	—
557	—	—	—	—	—	—	—	139	181	69	112	109	134	—	34	50	—	—	146	—	—	—	—	—
566	—	—	—	—	—	—	—	137	195	73	124	102	131	—	34	51	—	—	143	—	—	—	—	—
585	—	—	—	—	—	—	—	144	191	70	116	102	132	—	34	49	—	—	147	—	—	—	—	—
588	—	—	—	—	—	—	—	140	190	68	120	111	139	107	32	50	124	543	147	138	109	113	125	125
626	—	—	—	—	—	—	—	145	200	—	113	104	143	—	36	47	—	—	137	—	—	—	—	—
639	—	—	—	—	—	—	—	143	199	65	112	111	133	98	40	43	117	552	147	131	109	113	127	119
649	—	—	—	—	—	—	—	137	192	63	111	100	132	—	34	—	—	—	145	—	—	—	—	—
674	—	—	—	—	—	—	—	151	203	70	117	106	144	101	39	47	120	565	146	138	113	118	141	119
682	—	—	—	—	—	—	—	148	191	56	101	109	137	—	36	42	—	—	147	—	—	—	—	—
689	—	—	—	—	—	—	—	137	203	68	117	107	134	—	32	48	—	—	145	—	—	—	—	—
690	—	—	—	—	—	—	—	143	193	68	113	108	140	—	41	47	—	—	152	—	—	—	—	—
694	—	—	—	—	—	—	—	150	199	68	110	113	145	103	36	50	120	550	147	137	112	107	126	113
719	—	—	—	—	—	—	—	136	186	64	111	104	132	—	36	43	—	—	147	138	110	105	124	114
721	—	—	—	—	—	—	—	143	196	71	119	108	134	—	34	48	—	—	155	148	112	109	125	114

COPTS (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
739	—	—	—	—	—	—	—	146	194	72	117	113	141	100	36	52	120	547	146	136	113	110	129	117
778	—	—	—	—	—	—	—	143	204	68	111	105	138	100	34	46	119	560	154	140	115	118	128	124
856	—	—	—	—	—	—	—	144	195	75	128	116	138	—	37	54	—	—	146	136	111	112	141	117
861	—	—	—	—	—	—	—	140	191	63	110	108	138	—	35	41	—	—	150	134	106	110	129	121
873	—	—	—	—	—	—	—	140	198	70	121	110	136	100	35	47	118	547	151	142	112	112	128	116
917	—	—	—	—	—	—	—	148	196	65	111	109	148	104	37	41	118	—	143	129	109	118	137	106
973	—	—	—	—	—	—	—	135	190	66	116	99	126	89	38	48	—	—	143	129	109	107	128	123
996	—	—	—	—	—	—	—	143	189	68	117	118	147	102	38	48	113	—	138	130	113	115	133	109

MIXTURES.

LOWER EGYPT—SUDAN.

21	1803	—	—	—	—	—	—	147	199	67	114	106	138	108	44	49	123	562	—	—	—	—	—	—
229	1685	—	—	—	—	—	—	150	198	69	118	115	146	111	49	38	131	—	—	—	—	—	—	—
392	1678	1379	1045	784	925	453	66	149	188	61	—	—	144	—	38	41	—	—	—	—	—	—	—	—
409	1747	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
536	—	—	—	—	—	—	—	149	201	71	118	111	137	103	36	51	120	557	149	135	110	114	122	124
578	—	—	—	—	—	—	—	135	196	63	107	104	132	—	40	43	—	—	146	—	—	—	—	—
587	—	—	—	—	—	—	—	145	196	68	121	110	142	—	36	45	—	—	149	—	—	—	—	—
591	—	—	—	—	—	—	—	140	192	61	104	107	145	107	37	45	120	528	142	130	112	118	134	111
763	—	—	—	—	—	—	—	140	190	69	114	100	132	—	31	53	—	—	151	130	105	104	124	123
796	—	—	—	—	—	—	—	141	192	65	115	111	133	104	38	41	113	537	147	134	107	110	128	117
824	—	—	—	—	—	—	—	139	194	64	110	114	143	100	42	43	107	—	134	127	103	116	132	118
878	—	—	—	—	—	—	—	154	196	68	112	117	148	—	36	49	—	—	148	135	110	109	127	120

MIXTURES (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
882	—	—	—	—	—	—	—	146	194	65	109	110	140	—	41	46	—	—	147	—	—	—	—	—
909	—	—	—	—	—	—	—	150	197	70	119	105	141	—	37	47	—	—	152	137	107	116	132	118
945	—	—	—	—	—	—	—	143	183	62	103	125	141	104	37	44	116	—	143	124	102	105	120	116
967	—	—	—	—	—	—	—	136	192	63	108	105	127	—	42	—	—	—	145	129	107	117	124	118
LOWER EGYPT—UPPER EGYPT.																								
234	—	—	—	—	—	—	—	146	191	61	112	107	134	104	35	47	116	—	—	—	—	—	—	—
292	1720	1394	1064	775	906	468	78	144	194	64	—	—	137	—	42	50	—	—	—	—	—	—	—	—
628	—	—	—	—	—	—	—	143	199	68	119	107	136	—	39	48	—	—	142	—	—	—	—	—
752	—	—	—	—	—	—	—	150	194	65	113	113	142	—	38	47	—	—	147	130	105	105	126	119
761	—	—	—	—	—	—	—	146	198	65	115	117	138	—	34	48	—	—	154	—	—	—	—	—
885	—	—	—	—	—	—	—	145	206	69	121	114	144	—	40	50	—	—	153	—	—	—	—	—
935	—	—	—	—	—	—	—	145	203	75	125	116	141	—	41	51	—	—	145	—	—	—	—	—
997	—	—	—	—	—	—	—	141	190	65	110	109	135	—	38	49	—	—	144	—	—	—	—	—
LOWER EGYPT—LOWER EGYPT.																								
25	1726	—	—	—	—	—	—	147	209	66	124	108	137	108	38	48	121	572	—	—	—	—	—	—
174	1780	—	—	—	—	—	—	143	207	70	124	114	144	111	35	51	125	570	—	—	—	—	—	—
199	1708	—	—	—	—	—	—	141	196	61	112	113	143	101	38	48	114	546	—	—	—	—	—	—
217	1635	—	—	—	—	—	—	150	189	66	123	112	143	104	35	52	121	—	—	—	—	—	—	—
239	—	—	—	—	—	—	—	148	194	69	114	104	130	96	44	54	115	—	—	—	—	—	—	—
318	1732	—	—	—	—	—	—	140	204	68	—	—	144	—	27	44	—	—	—	—	—	—	—	—

MIXTURES (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
323	1715	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
361	1760	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
570	—	—	—	—	—	—	—	148	199	67	110	110	139	104	39	47	—	—	148	—	—	—	—	—
586	—	—	—	—	—	—	—	143	194	66	108	110	136	—	36	49	—	—	155	—	—	—	—	—
633	—	—	—	—	—	—	—	144	212	73	123	109	138	—	36	53	125	577	151	141	117	119	136	126
684	—	—	—	—	—	—	—	145	195	74	121	107	136	—	33	50	—	—	156	—	—	—	—	—
691	—	—	—	—	—	—	—	144	195	67	114	109	137	—	34	46	—	—	146	—	—	—	—	—
693	—	—	—	—	—	—	—	143	198	66	118	113	143	—	40	48	—	—	142	—	—	—	—	—
740	—	—	—	—	—	—	—	141	190	63	113	104	140	—	—	—	—	—	139	134	110	113	138	113
742	—	—	—	—	—	—	—	138	187	67	119	101	129	—	—	—	—	—	147	133	110	104	122	119
747	—	—	—	—	—	—	—	147	200	67	114	106	141	—	37	47	—	—	147	136	111	110	133	122
793	—	—	—	—	—	—	—	137	190	—	—	—	137	—	—	—	—	—	140	130	108	107	128	117
799	—	—	—	—	—	—	—	147	193	—	—	—	137	—	—	—	—	—	144	130	108	113	130	112
816	—	—	—	—	—	—	—	150	201	63	108	114	143	—	37	46	—	—	150	139	112	113	133	123
851	—	—	—	—	—	—	—	155	198	70	117	112	141	—	37	47	—	—	150	—	—	—	—	—
938	—	—	—	—	—	—	—	140	195	65	111	108	133	—	35	47	—	—	140	—	—	—	—	—
951	—	—	—	—	—	—	—	151	196	68	110	108	142	—	36	48	—	—	146	—	—	—	—	—
986	—	—	—	—	—	—	—	147	188	69	119	108	132	—	37	49	—	—	148	—	—	—	—	—
979	—	—	—	—	—	—	—	148	192	69	119	108	133	101	36	47	121	—	148	134	112	109	130	115

UPPER EGYPT—SUDAN.

26	1713	—	—	—	—	—	—	144	192	61	110	105	129	101	38	44	112	542	—	—	—	—	—	—
33	1753	—	—	—	—	—	—	156	206	69	128	112	146	117	39	48	126	489	—	—	—	—	—	—

MIXTURES (*continued*).

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
112	1720	—	—	—	—	—	—	143	194	66	113	113	135	101	38	50	116	543	—	—	—	—	—	—
390	1752	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
443	1730	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
615	—	—	—	—	—	—	—	142	201	63	113	105	134	97	36	52	113	555	143	134	115	118	128	116
653	—	—	—	—	—	—	—	142	192	67	114	111	135	106	45	45	124	537	150	139	115	115	127	111
696	—	—	—	—	—	—	—	154	199	68	113	117	144	106	42	45	128	562	156	129	107	111	127	125
952	—	—	—	—	—	—	—	145	195	72	123	116	137	105	36	50	123	—	139	137	115	120	137	110
UPPER EGYPT—UPPER EGYPT.																								
70	1740	—	—	—	—	—	—	138	188	66	120	110	137	106	43	52	120	535	—	—	—	—	—	—
106	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
274	1717	1390	1050	790	935	480	85	150	192	67	—	—	137	—	49	33	—	—	—	—	—	—	—	—
378	1756	—	—	—	—	—	—	150	190	67	—	—	136	—	37	45	—	—	—	—	—	—	—	—
458	1762	1410	1071	800	926	480	68	143	206	69	—	—	144	—	40	48	—	—	—	—	—	—	—	—
507	—	—	—	—	—	—	—	138	202	65	113	111	136	—	37	45	—	—	—	—	—	—	—	—
541	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
778	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
875	—	—	—	—	—	—	—	148	201	67	117	106	144	—	35	49	—	—	147	136	109	110	129	119
1005	—	—	—	—	—	—	—	144	199	67	116	104	136	—	—	—	—	—	144	—	—	—	—	—
LOWER EGYPT—TURK.																								
5	1774	—	—	—	—	—	—	150	193	73	114	113	146	116	39	46	—	—	—	—	—	—	—	—
251	1816	1470	1133	837	965	1485	—	150	194	64	—	—	144	—	38	58	—	—	—	—	—	—	—	—

MIXTURES (*continued*).

UPPER EGYPT—MAGHRABI.

Subject Number.	3	6	7	8	9	10	11	12	13	14	15	16	17	22	25	26	27	28	30	31	32	33	34	35
64	1750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
64	1750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
985	—	—	—	—	—	—	—	145	199	65	112	108	143	—	37	44	—	—	142	134	111	113	136	118

UPPER EGYPT—BEDAWI.

831	—	—	—	—	—	—	—	146	195	66	115	106	137	100	36	49	116	544	155	135	106	107	128	124

NOTES ON SINHALESE MAGIC.

By W. L. Hildburgh, M.A., Ph.D.

[With Plates XI–XVI.]

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INTRODUCTORY.

IN the following notes the parts relating to charming, to devil-dancing, and to astrology in Ceylon should be regarded as supplementary to information which has been published previously, notably in *On Demonology and Witchcraft in Ceylon*,[1] *Yakkun Nattannawā and Kōlan Nattannawā*,[2] *The History and Doctrine of Budhism*,[3] and *Sinhalesische Masken*.[4] Repetition of what is to be found in those works has been avoided as much as possible in an attempt to give such details of ceremonies as might be of interest to the ethnologist and the folk-lorist. The parts relating to the minor magical practices (as distinguished from those particularized above), including amulets, enter, I believe, upon a field which has been but little worked.[5]

All my information (unless otherwise noted) has been taken direct from believers in, or practitioners of, the matters discussed; principally from Sinhalese, but partly from Tamils and, in a very small measure, from Indian Mohammedans. As many of the Sinhalese, especially at Colombo, are acquainted with English, frequently no interpreter was required in making enquiries as to matters known to the ordinary people. On several occasions my interpreters were Sinhalese of fair position, who had known me to have, since some years, an interest in matters magical, and who had furthered it in various ways; but in most cases I employed a charmer who spoke English, whom I found to be reliable (except as to minor details in matters of memory, where he sometimes became confused) on the various occasions when, without his knowledge, I tested him by means of information derived from independent sources. I was able, through this charmer, to obtain much information from other charmers, to whom he vouched for my interest in and knowledge of the subject, and against whose impositions, on the few occasions when such were attempted, he warned me. Freedom of speech on the part of these people was promoted, I think, by my known possession of many magical books (some of them

[1] D. De Silva Gooneratne, in *Jour. Cey. Branch R. As. Soc.*, 1865–6.

[2] J. Callaway; London, 1829.

[3] E. Upham, *The History and Doctrine of Budhism, with notices of the Kappooism, or Demon Worship, and of the Bali, or Planetary Incantations, of Ceylon*; London, 1829.

[4] A. Grünewedel, in *Internat. Archiv. f. Ethnog.*, Band VI, p. 71.

[5] In Clough's *Sinhalese-English Dict.*, 1892 ed., there are many references given, amongst the definitions, to both professional magical practices and those of the folk.

containing rare or particularly powerful mantras), and also, I believe, because in some cases I was regarded as having a knowledge of foreign magic as well as of Sinhalese.

The ordinary Sinhalese, with whom the European usually comes in contact, seems to know comparatively little about magical matters, although they have often no small part in the conduct of his life. While in many cases his ignorance is of the same nature as that of Europeans where the practices of their own physicians are concerned, it is, doubtless, in others more or less feigned, prompted by the common disinclination to speak of magical matters to strangers of superior standing, and with different beliefs. It is due to this that, while many of the notes relating to general customs and to amulets have been taken from servants, shop-keepers, and others ordinarily engaged, almost all those relating to charming and to devil-dancing have been obtained from persons engaged, to some extent at least, in the professional practice of magic.

Although a very large proportion of the Sinhalese charms are recorded (in some form) in books, I have used such books to a very limited extent in obtaining my material, and have drawn it, verbally, direct from professional operators. Owing to this (although matter concerning a ceremony as performed, and the accompanying beliefs, as related to me, are assumed to be correct), there are, in many cases, I believe, mistakes due to the reciter's faulty memory, such mistakes consisting principally of omissions or, sometimes, of confusion in the number of objects to be used in a ceremony. These mistakes are, however, I think, generally of but little consequence, and are due, where confusion occurs, to the mixing of some of the least important details of one elaborate ceremony with those of another perhaps equally elaborate. Unless otherwise stated all customs noted are those of the Sinhalese.

As an aid to the comprehension of the matters to be described, the following brief notes, taken from *On Demonology and Witchcraft in Ceylon*, on some of the essential features of Sinhalese magic concerned with devils, are appended:—The demons are of two kinds: evil spirits known as *Yaka*, who form a large community governed by a king and by a series of officers of various grades below him; and a species of inferior gods (whom I call "Benevolent Devils"), known as *Dewatawa*. It is believed that there are enormous numbers of demons in existence, although only about 50 or 60 of these enter into the demon worship. The *Yaka* do not come in person to afflict people, but act by (literally) "keeping sight" upon them, with results the same as if the devils were actually present. Sometimes, in conjunction with their other operations, the devils may, while remaining far distant, send apparitions representing themselves. The charms (mantras) are generally in Sanskrit, Tamil, or Sinhalese, although there are a few in other languages, such as Arabic, Persian, Telugu, Malaiālim, and Bengali. In some mantras a mixture of several languages is used; in others an unintelligible collection of meaningless sounds. It is said that much of the virtue of a mantra resides in the peculiar arrangements and combinations of certain letters. The science of charming is

divided into eight parts: the power of inducing swoons, illicit sexual intercourse, the expulsion of demons, compelling the attendance of demons, destruction by discord, causing death, the power of imprisoning, and the power of curing diseases, to each of which are assigned certain seasons, days, and hours for their successful performance. There is a ceremony, called *jíwama* (literally "the endowing with life"), which must be performed, in addition to the recitation of the words of the charm, the difficulty and danger attending which vary according to the result which the operator wishes to obtain.

The spelling of the Sinhalese words in the text is that, in the main, of Clough's *Sinhalese-English Dictionary*, but as, owing to the class of most of my informants, many of the words were received in a corrupt form, all have not been identified; words whose identities were not established are marked (?). The spelling of the names of the devils is that of Grünwedel, in the case of most of those referred to by him.

GENERAL NOTES.

Impurity (ceremonial uncleanness)[1].—When in an unclean state a person ought not to wear anything good or valuable, for such things are liked by the gods, and they dislike them to be polluted. (Compare "Use of gold in magic.")

Evil devils are fond of the smell of the menstrual blood; benevolent devils hate it.

During her menses and for seven days thereafter a woman is unclean. Should yantras be placed upon her before the seven days are past, they will not be effective.

A person who has been charmed, for the cure of disease, the removal of evil influences, or his general benefit, should for a certain period remain pure and out of reach of contamination by persons in an impure state. As a warning to such people to keep away from the patient a few bunches of mango leaves are hung up in the outer doorway of his house.

Coconut fibre is an unclean substance, because during its manufacture it is put into dirty water or unclean places. The leaves upon which magical writings are inscribed are, consequently, never tied together by charmers with cord made of that substance. When leaves are found so fastened it is an indication that they have been tied together by some ignorant person.

See "Protection of infants" for infants' impurity; "Use of gold in magic" for sacrilegious use of gold; and "Amulets (Charmed Objects)" for loss of efficacy caused by impurity.

Use of iron in magic[2].—Iron is abhorred by devils. A reason (which is probably really the result of the belief) given for this is that the devils' king, Wesamuṇu, uses an iron rod to punish his disobedient subjects.

In certain ceremonies in which the "sight" of devils is required, the

[1] In *Dem. Cey.*, p. 88, are some notes on impurity, especially that due to a dead body.

[2] Compare notes in Thurston's *Ethnographic Notes in Southern India*, p. 341.

"decorated chair" (altar of offerings) and the stool which the operator may sometimes rest upon, must be made without iron (wooden pegs are used instead of nails), or the "sight" cannot be obtained.

During thunderstorms iron objects are put outside the house and exposed to the sky. This observance was explained as due to a belief that iron is disliked by lightning, which will not come near places where iron is exposed.

Miniature swords made of iron, with scabbards of silver or gold, are sometimes worn by people as protections.

For about three weeks after (before ?) the birth of a child, a woman wears an areca-nut cutter or a grass cutter at her waist, with the blade hidden by her clothing. Should she be ill, or become ill, during that period the instrument is carried until health is regained.

A protection to keep evil spirits, the effect of the evil eye, and the like, away from a house, consists of a pair of iron ornaments, each in the form of a lion holding out a *Para-walalla* (see "Amulets," *Pañcháyuda*) painted yellow, and mounted each upon a block of wood. They are to be fastened up, one upon either post of the inner side of the entrance to the house. The iron and the *Para-walalla* are the protective parts of the device; the figure of the lion is used because that animal is beloved by gods and benevolent devils. The yellow colour has no significance. In order to increase their effect the ornaments are charmed.

See "Amulets (Misc. notes) (*Pañcháyuda*) (Children's amulets)," and "Protection of cattle," for other amuletic uses of iron; "Curative Practices (Effect of Evil Eye), (Cramp), (Head-ache)" and "Punishing devils" for uses of iron in curing; and "Astrology" for an obstructing effect of iron.

Use of gold in magic.—Gold is a substance liked by the gods, who are themselves radiant with it. It is, consequently, a kind of sacrilege for a person in an impure state to wear gold.

See "Amulets" for inserted pellet of gold; "Protection of infants" for amuletic pellets containing gold; and "Curative practices (Rat bite)."

Use of stones in magic.—See "Protection of houses," "Astrology," and "Amulets (Animal products)," for use of stones as amulets; "Votive offerings" for use of stones as *Ex-votos*; and "Love-Charms" for use of stones as counters.

Use of garlic in magic.—Authorities on magic state that the evil devils hate garlic, whereas the gods and benevolent devils are pleased by it.

Garlic, either simple or charmed, is eaten by women who have brought forth children, for the purpose of keeping off evil spirits and evils of every kind, and to promote the flow of milk.

As a cure for the diseases caused by worms (including amongst such, apparently, infantile convulsions) a child should drink woman's milk into which the juice of baked garlic has been squeezed. If drunk by the mother, this same liquid serves to protect her from various sicknesses.

Garlic is hung at the wrists of infants for three to seven days after birth, in order to protect them from worm diseases and from devils.

As a cure for head-ache, water into which some charmed garlic has been rubbed is put upon the forehead.

As a cure for ear-ache, some charmed garlic is put into the ear.

Animals in connection with magic.—In some forms of charming the devils summoned send their apparitions in the forms of various animals (see *Dem. Cey.*, p. 60; also "Killing of enemies").

The animals used in connection with magical ceremonies should always be black. The fowls, unless their colour be specified, may usually be of any colour.

There are four "clean" (pure) animals which are especially liked by the gods and the benevolent devils—the lion, the tiger, the unicorn, and the elephant. (On the "moonstones" at Anuradhapura one of the concentric semicircles is very frequently made up of a series of sets of four animals—a lion, an elephant, a horse, and a bull.)

See "Amulets (Animal Products)" and various headings under "Curative practices" for uses of animal products; "Killing of enemies" for uses of cocks employed in charming; "Protection (Perils), (Houses), (Crops)," for protections against animals; and "Change of appearance" for assumption of animal's form.

Colours in connection with magic.—Many black objects, such as black glass rings and bangles and black hair ropes, are considered to be protective. The frames of the painted or printed pictures used as charms in houses are usually black, in order to increase the protective action, or to make the picture itself safer from attacks.

Black dresses or red dresses should not be worn by children, because certain evil devils like these colours, and are attracted by them. Dark blue, because of its resemblance to black, is rather bad for children's wear. White, which is disliked by evil devils, is the best colour for children's dresses. Yellow is very good. Other colours may be used without affecting the child.

The five Buddhist colours worn together are protective.

Certain colours are beneficial to their wearers, according to the planets under which those persons were born.

See, for various notes, "Animals in connection with magic," "Love-Charms," "Curative practices (Bleeding), (Children's sicknesses)," and "Devil-dancing."

"5" *in connection with magic*[1].—The pentacle (⛤) is used as a design in the construction of yantras, and is tatued upon the body as a protection. Its five points guard the "five gates" (these are figurative or psychical entrances, not physical openings) of the body, whereat unseen enemies are constantly watching for chances to cause harm. It is sometimes branded upon cattle in four places, as a cure for lameness.

See "Love-charms," "Injury of enemies," "Killing of enemies," and "Amulets (Medicinal Substances)," for various applications of "5"; "Colours in...magic" for

[1] In Clough's *Sinhalese-English Dictionary*, under various compound words commencing with *pas* or *pañchá*, is given much folk-lore connected with "5."

use of five colours; "Amulets (*Pañcháyuda*)" for use of five symbols; and "Amulets (Metallic Amulets)" for use of five metals.

Transmutation of copper to silver.—The following recipe for changing copper to silver is evidently merely one for making a white alloy, or a tough amalgam, of silver. It was given from memory.

The liquids used are:—

(*a*) A decoction of about twenty sliced lemons boiled with a handful of salt.

(*b*) One measure of juice extracted from the bark of an old mango-tree.

(*c*) Three measures of lemon juice.

(*d*) Three measures of the juice of the *kámurangá* (a kind of bilimbi, *Averrhoa carambola*) fruit.

(*e*) Three measures of the juice of the *bilin* (*Averrhoa bilimbi*, country gooseberry) fruit.

(*f*) One measure of the milk (juice) of the *elawará* (?) [*hela-wará* (?)], a kind of milkweed plant.

The copper is first buried in the earth for three days. After exhumation it is heated and plunged into (*a*). It is next cleaned with a kind of fine sand, and is then plunged into the liquids (*b*), (*c*), (*d*), and (*e*) in turn, being heated before, and cleaned after, each plunging. After these operations the copper is melted in a crucible with two cents in weight of mercury. To this amalgam are added one cent in weight of silver, one cent in weight of old coin silver, and one cent in weight of iron sulphate (apparently, but, although said to be green, possibly alum), and all are melted together. The melted mixture is poured into the milkweed juice (*f*), and the product is then re-melted and poured into (*f*) again, the operation being repeated until (usually after from five to seven pourings) the metal loses its brittleness (as tested by hammering), when the operation is finished.

Miscellaneous notes.—A person who is lying down should not be stepped over, for the watching of the benevolent devils would thus be turned from him. A person should, for the same reason, not place his hand upon another person's head, nor take anything from another person's head. Compare "Divination (By an ordeal)."

The leg is the least honourable part of the body, wherefore being kicked is much more offensive to a person than being struck with the hand.

In many charming ceremonies water from a "new well" is required. Such a well may be made by scooping out or digging a small hole in the soil near the edge of a stream or a body of water, and allowing it to fill by drainage.

ASTROLOGY.

Horoscopes.—A *welá-pat-kaḍa* ("time-leaf-piece") is a sheet whereon are given the data relating to the birth of an applicant for a horoscope. Ola-leaves are generally used, but paper is often employed as the base. A *welá-pat-kaḍa* is

prepared by the astrologer when the applicant's first horoscope is constructed, and serves, since other copies are not required, as a basis for any horoscope the applicant may order later.

Horoscopes have, almost invariably, the form of a roll, for the reason that it is considered necessary to write each horoscope upon a single ola-leaf, which is best preserved in rolled form. Horoscopes, in the language in which they are prepared, can be read only by the initiated, for which reason people sometimes have their horoscopes translated into ordinary language; the translations may, unlike the actual horoscope, be written in ordinary books without prejudicial effects.

Amulets.—The favour of the planets may be secured, or unfavourable influences due to them neutralised, by means of written amulets (see "Yantras"). The favour of a planet may be secured, or evils due to it averted, by wearing the stone which represents it, or by wearing a certain colour. A planetary stone ought not to be set with iron, nor ought brass, which is a base metal, be used with it; it should be set in gold, silver or copper.

The *Nawaratna*-ring, a favourite amulet among the better classes of Sinhalese, is a finger-ring, almost always of gold, set with nine gems (*Nawaratna* = nine precious-stones) and suitably charmed. The nine gems used are representative of the nine planets (sometimes each is thought to have the colour of the planet to which it corresponds), and ought to be perfect stones. *Narwaratna*-rings are worn as correctives of malign planetary influences, to bring good fortune, against the effect of the evil eye, etc. Rings and other ornaments set with the nine gems are commonly sold by the Sinhalese jewellers, but no amuletic virtues are ascribed to these, which are worn as ordinary personal jewellery. *Nawaratna*-rings, which have been properly charmed, are hard to get, and very expensive. There appear to be three quite distinct methods of imparting magical virtues to a *Nawaratna*-ring:—(*a*) (communicated by a wearer of such a ring) By setting each stone, one at a time, under the influence of the planet to which it corresponds; thus years sometimes are required for the completion of the ring; (*b*) (communicated by a vendor of uncharmed rings) By placing the completed ring, with other objects to which magical properties are to be given, in the preaching-shed during the ceremonies to clear a village of disease, and afterward subjecting it to some special blessings by the priests; and (*c*) (communicated by a charmer) By charming the mechanically completed ring by regular charming ceremonies. The charming ceremonies should extend over a considerable period, the longer the better. Some rings are endowed with their virtues by nine charmings in one day, some by nine charmings in four and a-half days (= nine half-days), some by a charming each morning and evening during nine weeks, and others, the best that are made, by a charming each morning and evening during nine months. For the charming a considerable number of things are used, including nine kinds of flowers, nine kinds of buds, nine kinds of water, etc. The nine kinds of water are as follows: river-water, lake-water (from a body of water with an outlet), pond-water (from a body of water without an outlet), well-water, rain-water; water on leaves after

rain, water in the cavities of trees, water in the fields after rain, and water in the hollows of rocks on mountains after rain.[1]

See also "Amulets (*Pañchâyuda*)."

MISCELLANEOUS MAGIC.

CHARMERS.

Miscellaneous notes.—Should a charmer make even a slight mistake during the performance of a "serious" charming ceremony (*i.e.*, a ceremony for which he has summoned the "sight" of powerful and malignant devils), he renders himself liable to an immediate attack by the devils he has called upon, resulting in serious injury and perhaps in death. It is for this reason that the mantras for such ceremonies must be learned by heart, and not read from a book during the performance, since in reading a mistake may easily be made. A charmer prefers to learn from an old book rather than from a new one, because there is a smaller chance of errors, due to copying, in the former.[2] The verses of other kinds which are recited during various curative and protective ceremonies must also be learned by heart, because, although no danger due to slight mistakes in their recital need be apprehended, the charmer cannot hold a book (his hands being otherwise occupied), nor read while dancing.

A peril to which a charmer is exposed while engaged in "serious" charming is that some rival charmer, jealous of him, or angry at not having been himself chosen, may render the summoning of the devils' "sight" not merely difficult, but even dangerous.

A charmer always, if possible, allows his hair to grow long. Should he, as often happens during the performance of "serious" charming, be overcome by the devils he has summoned, he is revived by his assistant, who pours charmed water upon him and ties knots, accompanying the process by the recital of certain mantras, in his hair. Such knots are tied only for the purpose of reviving the operator; were they to be made before the ceremony, in order to protect him, he would find it difficult, or impossible, to get the devils' "sight," since the charmed knots are distasteful to them.

A less important reason for the hair being kept long is that in some ceremonies it is required that the charmer dress as a woman (compare "Curative Practices, Barrenness"). In certain of the ceremonies in which he plays a woman's part three strands of his hair are plaited together, and the braid thus formed is stretched from one side of the head upward, toward the middle of the top of the forehead.

Sons are born to charmers as frequently as to other men, but the proportion

[1] In *Yakkan Nattannawa*, "Practices of a Capua," p. 20, five kinds of water are mentioned for a charming ceremony: water from cavities of an iron-tree, from a brick-kiln, a place where clothes are washed, a place haunted by devils, and a blacksmith's trough. These seem to me to represent the Buddhist five elements—wood, earth, water, fire (?), and iron.

[2] One form of the danger is treated of at length in *Dem. Cey.*, pp. 60, 61.

of such children who die is, it is said, much greater than the normal. This circumstance is attributed to the action of the devils, who fear lest the sons may, when grown, follow their fathers' profession, and command the devils as their fathers did before them. Should a charmer find that his sons always die during their childhood, he may (as did some of the charmers with whom I was acquainted) give up "serious" charming for a number of years, until his boys have passed through the dangerous period.

Should a charmer be unclean (as from eating forbidden food, such as pork, for example), he will have difficulty in obtaining the "sight" of the devils he wishes to summon. For this reason charmers are more careful than other men with regard to impurity in general.

When he wishes to summon the "sight" of one or more devils, before the main part of a charming ceremony, the charmer, taking some prepared *dummala* powder in his right hand, and holding it near to his mouth, pronounces over it a kind of mantra called *dummala-warama.* Then he casts the powder upon burning coals, allowing the smoke to come upon him, thus drawing to himself the "sight" of the devils he requires, which causes him to shake and to shiver. Some of the *dummala-warama* are so terrible and so powerful that they are seldom set down in writing, but are transmitted verbally, generally by a father to one only of his sons; should the charmer write them out, as an aid to his memory, he usually buries secretly the leaves bearing them, before he dies. Should strangers wish to learn such mantras as these, the charmer who teaches them exacts a high fee for his services.

When the prepared *dummala* powder (resin with a small amount of nitre) is thrown upon a burning torch, as is done in some ceremonies, it burns with almost explosive rapidity, giving a sudden flash; it is probable that the introduction, as a factor in so many charming ceremonies, of the powder, the smell of whose smoke is believed to be liked by the evil devils, has been aided by this action.

LOVE-CHARMS.

With waxen images.—The following method may be applied at the instance of either a man or a woman; naturally, it is generally done for the former. Two images, a male and a female (the difference in sex being indicated principally by the breasts of the female, which are absent in the male) are formed of a mixture of five kinds of wax, such as the wax of the humble bee, of the large black bee, of the kaneyiya fly, etc. As the relative proportions of these ingredients are immaterial, comparatively small quantities of those which are expensive are generally used in the mixture. To each image there may be attached a paper bearing the name of the person represented; or the personality of the image may be indicated in some other way. For the charming a "decorated chair" (altar of offerings, a chair is generally used for convenience) is prepared as follows:—The seat of the chair is covered with plantain leaves, and a handkerchief (or some similar cloth) of five colours is hung over the back. Upon the plantain leaves there are laid

some areca flowers, arranged to form nine compartments, in each of which there is a betel leaf upon which lies a small copper coin (a ½-cent piece), the middle compartment containing, in addition, a small silver coin, all the coins being covered with flowers. Upon the plantain leaves there are laid a number of other objects—a leaf of the jak-fruit tree rolled as a cone and smeared with wet sandal-wood powder, one or two bits of camphor, three or four sticks of sandal-incense, a piece of fresh tamarind, a small bottle of scent (such as cologne-water), a hen's egg, a woman's hair-combing comb, and, finally, the two images upon a layer of flowers of five kinds (preferably sweet-scented flowers, though any kind except *kaduru* (dog-bane) flowers may be used). The images are laid with the breasts alone in contact, the male above and across the female so that his head is beyond her left side, and the lower part of his body beyond the right (position as used by my informant, who had performed the charm on several occasions). The charming is done in an empty house (where no contaminating influences are likely to interfere), or in a cemetery, a partially opened grave, or some similarly suitable place, at evening, midnight, and morning, and until it is completed the operator must be careful not to become in any way impure (it is, indeed, preferable for him to keep away from all women during the whole of the day of the ceremony). Before commencing the ceremony the charmer cleanses himself thoroughly with limes and water, and puts on clean clothing. During the performance all the objects employed, from the "decorated chair" to the stool (should he use one) upon which the operator sits, are thoroughly fumigated with charmed *dummala* powder thrown upon hot coals. The ceremony begins, on each occasion, with the recital, seven times, of a charm to attract Vishnu's attention, and to ask his permission to proceed. This is followed by the recital, 108 times (the counting being marked by the use of stones held in the hand), of a mantra wherein the operator bids certain five devils, whom he names, to hearken unto him exclusively, and whom he tells (where a woman is the victim) "the woman that I mention make to tremble, her blood, her flesh, her chest, the hair of her body; and cause her to come to the place I indicate, to obey me." During the recital of the mantras the operator kneels before the "decorated chair." When the charming has been completed, early in the morning, the images are separated and (in this case) the female image is carried in the hand, behind the back (in order that it may not be injured by the breath of the person carrying it), without a single word being spoken, to the woman's house, and is there buried secretly in a spot where she will be sure to step over it. The male image, meanwhile, is carried by the lover. When the female image has been stepped over by the woman it is exhumed and, placed against the male image, is carried by the lover. The effect of the charming is to cause the woman to look after her lover when he passes, and to think of him to the exclusion of all else. Should marriage take place, in order that the affection of the couple may continue, the images ought to be buried in a deep hole and covered with a large stone. Should it be desired at any time to break the spell the male image (in the above case) is buried where the woman will step over it, whereby her love is caused to

turn to hatred. When the spell has been broken the image may be left where it lies, or it may be exhumed (as is more often the case) for use in similar ceremonies.

After the victim has stepped over her (or his) image, that image, when being carried by the operator (or lover), should, preferably, never be allowed to get lower than his own waist. Should the image be dropped accidentally, it should be picked up by the person who has dropped it, *without his moving a step* from the spot at which he let it fall.

The prominence of the number *five* in this charming was explained as due to the necessity of turning the beloved one's "five passions" toward the lover.

With a flower.—The following method is applicable only to a *virgin*; it is applicable neither to other women nor to men. A flower having been charmed in a certain manner, the victim develops an irresistible craving for it the moment she sees it, and will do anything to obtain it. The lover carries the flower in his right hand while passing the girl, and she is thus impelled to come to speak to him, and, because of her desire for the flower, to do whatsoever he may ask, in the hope that she may obtain it. The flower may be promised to the victim, but must not be given her, since the moment it enters her possession the spell is broken.

See also "Charms to Secure Favour."

CHARMS TO SECURE FAVOUR.

With waxen images.—Two *male* images are formed of the mixture of five waxes described under "Love-Charms," into one of which the name of the applicant for favour is placed, the other receiving the name of the judge, governor, or other man whose favour is desired. The images are then charmed in the same manner as those of the love charm, the victim's image is placed where he will step over it, and the other operations are conducted in similar form.

With medicines.—A certain kind of charmed oil, called *Waisia-taila* (?) ("Liking-oil (?)"), requiring an elaborate process of preparation, is rubbed upon the person or dress of him whose favour or friendship is sought. When it is impossible to apply the oil to the victim its possessor may, to secure the result desired, rub a little upon his own forehead. An oil of the same kind may be used as a love charm.

A certain kind of charmed paste, called *Waisia-andun* ("Liking-ointment (?)") which requires an elaborate process of preparation, and which should be preserved in a box made of bell-metal (a choice metal), is rubbed beneath his eyes by its possessor before he enters the presence of the person whose favour is sought. In order that the charm should succeed it is necessary that the applicant be clean and in clean clothing, and that it be noted, by the victim, that the applicant's skin beneath the eyes is blackened. A paste, presumably of similar nature, is used as a love-charm.

By amulets.—An amulet which will cause all persons, and even animals, to like the wearer of it, and which will protect him from the fury of the elements, may be made from the shells of the eggs of the birds which build their nests upon

the walls of houses. Some of these shells having been enclosed in an amulet-case, the whole is charmed, at evening, midnight, and morning, in a cemetery, and, when the charming is finished, is tied, by means of a string with seven charmed knots, upon the wrist or arm, where it will be exposed to the view of those whose favour is desired.

The "jackal's horn," described under "Amulets (Animal products)," is used as a means of securing favour. See also "Amulets (Yantras)."

INJURY TO ENEMIES.

By giving griping pains.—The victim's name is scratched upon a copper coin, which is then charmed upon a "decorated chair." Whenever the victim is to suffer, the charmed piece of copper is placed amongst the embers of a fire made of five kinds of wood of *pas-peṇgiri* trees (trees bearing citrus fruits, such as orange, mandarin orange, lemon, lime, etc.); so long as the metal remains hot the victim will have griping pains.

By paralyzing the mouth.—The operator, hearing his victim speaking or singing, charms the palms of his hands, and then, having separated them, claps them together suddenly. The victim's mouth is thus caused to remain fixed in whatever position, open or shut, it was at the instant the operator clapped his hands, the victim having lost control over it. As a cure, one of the victim's friends charms the palm of his own hand and slaps the victim's face with it.

By paralyzing the throat.—The operater, seeing his victim eating, recites a certain mantra seven times, and then, at a moment when he sees that his victim is swallowing, clicks his tongue in his mouth. The victim's throat is thus caused to become instantly paralyzed, so that his food will go neither up nor down. As a cure, one of the victim's friends recites a certain curative mantra seven times, while holding his thumb and index finger, spread apart, round the front of the victim's throat.

By causing sudden illness.—Some dust is taken from a print of the victim's right foot, and is dropped into a small king-coconut bearing a picture representing the victim, and having its top cut off, after which the whole is charmed. If at any time thereafter a little of the charmed liquid be dropped into one of his footprints, the victim will at once fall down ill, although not very seriously so. When some of the liquid has been used the efficacy of the remainder is gone. As a cure, the victim drinks the milk of a coconut over which a curative mantra has been recited.

By causing sickening.—An image representing the victim is carved from a certain kind of wild yam (not the cultivated, edible variety), which, to render its identity more certain, may be labelled. (In an image of this kind, made for me, the hair is represented as hanging down, because, the charmer said, a person's hair falls down when he is beaten.) Three thorns of one of the varieties of *pas-peṇgiri* trees, having been charmed, are driven, with the recitation of mantras, into the head, the breast, and the navel of the image. The image is then buried in some

spot where the victim will be sure to step over it, and is left there until he has done so, when it is removed from the ground and kept. The victim will become very ill, and, possibly, may die. The operator may, at any time, cause the sickness to stop, by withdrawing the thorns, reciting a mantra for each, and finally putting them into water. As a cure, one of the methods of removing the effects of sorcery (see "Curative Practices") is applied.

By causing incontinence of urine.—This spell is applied to women. Some dust is taken from a urinal which the victim is accustomed to use, and, having been charmed, is worn in a packet upon the arm for about a month. The packet is then buried where the victim will be sure to step over it, and, when she has done so, is removed from the ground and kept. The victim will pass urine unceasingly until the spell is broken, which result may be accomplished at any time by throwing the dust into water.

By causing a flow of blood.—The following method, which is applied to women, causes the victim to flow blood (as during her menses) unceasingly, until she becomes very ill, and, if not cured, dies; it is called *Kilimálé* ("Bloody-issue"). A bunch of twigs and buds of the creeper *niriti-wel* (Malabar nightshade [*Basella alba*]; I was told, although possibly mistakenly, that a non-poisonous variety is used), having been charmed upon a "decorated chair," is tied to a saffron-dyed thread, the other end of which is attached to an object upon the bank of a stream, on whose surface the bunch is allowed to float. As long as the bunch floats upon the stream the victim will flow blood, just as the water flows. Should, as sometimes happens, the bunch become detached, so that it floats away, the victim inevitably dies.

In another method (not limited to women) for causing continuous bleeding, the operator, seeing the blood of his victim coming forth, in however small a quantity, causes the bleeding to continue until the spell is broken.

By causing discord.—A picture resembling a person, with the name of either the husband or the wife of the couple between whom discord is to be produced written upon it, is drawn upon paper or upon a plantain leaf, with powder made from the root of a certain creeper. The picture, having been charmed, is torn into halves, one of which is presented to a certain devil, while the other is retained by the operator. The discord thus produced may, if prolonged, end in separation. In order to break the spell, both husband and wife should step over the half of the picture retained by the operator.

KILLING OF ENEMIES.

By means of a corpse.—The corpse of a boy less than seven years old, the first-born of a couple each of whom was a first-born child, is exhumed and is charmed in the cemetery. During the charming ceremony various apparitions of devils appear, in the forms of tigers, foxes, bears, elephants, wild bulls, pigs, etc., which must instantly be supplied with their proper foods, lest they injure the operator. An assistant should be at hand, with charmed water from a "new well"

(see "General Notes (Misc. notes)") in a new pot in readiness, with which to revive the operator whenever he becomes insensible through being overcome by the devils. When the corpse has been charmed three times (at evening, midnight, and morning) it is taken to a house (preferably unoccupied), and is laid upon a clean white cloth upon a chair, with a few (about ten) small jingle-bells on each wrist, and a rattan cane in its right hand. Then, a small opening to the outer air having been made in the roof above, the corpse is charmed. Of a sudden the bells upon the wrists are heard to jingle, and the corpse disappears, leaving its place empty, but only for a moment, for it reappears almost instantly. During its absence the corpse visits the victim, and kills, or at least severely injures him (unless turned back by counter-magic) by striking him with the rattan. When the ceremony has been completed the corpse is cleansed with limes and water, and is put away and kept by the charmer. (This charm, the name of which was given me as "*Tun-kulundul Pilli*" ["Three-first-born killing-spell"], is similar to that described in *Dem. Cey.*, pp. 88, 89, under the name of "*Cumara Pilli*," though differing in a number of details.)

By means of a pair of hands.—(The following information was brought to me, together with the two ivory hands, from a charmer in a jungle village, and passed, partly verbally, partly in writing, through two persons before it reached me. Both these persons were charmers whom I knew, but neither of them had ever heard of the method as given. The hands brought appear at one time to have formed the principal parts of a pair of back-scratchers, and to have been adapted later, by the engraving of magical words, such as *Óm*, *Hum*, "be victorious," etc., and of magical signs, to some magical purpose. Although my information was not obtained at first-hand, I have reasons for assuming that no attempt was made to impose upon me in the matter. I give the information as I received it, believing that, even if it be not true, it is worth preserving as folk-lore.)—The hands, which are made of the bone of a man's forehead, are charmed, and each laid upon its own "decorated chair." The devil Mahâsohon having been summoned, the charming is proceeded with until the proper mantra has been recited 108 times, at which moment one hand, jumping up from its chair, joins the other hand. One of the hands is then buried in some place where the victim will be sure to pass over it, while the other is retained by the operator. At the moment the victim passes over the buried hand he is struck by the devil Mahâsohon so severely that, unless a charmer be called in to cure him, he dies within a day or two. The mark of the devil's fingers appears where the victim has been struck.

By means of a cock.—The operator, having partially dug out a new grave, lies down in it, upon a new mat, with a "decorated chair" over his breast, and a white cock (from whose comb seven drops of blood have been taken and placed amongst the objects on the chair) tied to the great toe of his right foot. Various foods are at hand, to be given to the apparitions as they come, and an assistant stands by ready with charmed water to revive the operator whenever he becomes insensible,

or grinds his teeth in his ecstatic agitation. Amongst the objects upon the "decorated chair" are five thorns, taken from five different kinds of *pas-pengiri* trees. When the charming has been gone through three times, the chair and the cock are taken to a house (preferably unoccupied) where there are neither unclean things nor women about. The operator lifts one of the cock's wings, and places one of the thorns against a tender spot beneath it; then, having recited a certain mantra and mentioned the victim's name, he pushes the thorn in just far enough to draw blood. At the instant the cock cries out in agony the victim dies, bleeding. The thorn is not withdrawn, but is allowed to fall out of itself, a result which soon occurs. The thorns remaining may be used, without further charming, to kill other persons, being, in each case, used with a white cock, never before used in charming, which has been charmed by exposure to the smoke of *dummala* powder over which a mantra has been recited; the only variation in each case consists in the name of the victim who is mentioned.

A cock which has been used in this ceremony is regarded as having been given to a devil, and is never afterwards used in charming ceremonies. It is taken away by the charmer and, after having been kept awhile by him, is sold. A cock which has been charmed is thought to be particularly suited for cock-fighting, since it is, more or less, under the protection of a devil, and it is usually bought for that purpose. No one cares to eat the flesh of a charmed fowl, which causes many people to have a prejudice against buying white cocks for food. It is, however, generally possible to recognize fowls which have been used for charming, since the wound whence the charmer draws the blood leaves a light-coloured scar upon the red comb. (It seems probable that the use of the blood, in this and in other injury charms, is a softened form of the actual sacrifice of the bird, a thing which would be repugnant to Buddhists as devout as are many of the Sinhalese charmers. A charmer whom I had various opportunities of observing was very careful not to injure animals, nor even insects which annoyed him in any way; I do not know, however, whether this man would practise charms causing serious injury to persons, since many charmers refrain from such. It is possible that the dislike to taking life applies only directly, and not when the action is produced through the agency of devils, instead of by the charmer's own hand.)

By blowing peppers.—A certain mantra having been recited (without elaborate ceremonial) over some peppers of a certain kind held in the hand, the peppers are taken into the operator's mouth and, being bitten into pieces, are blown out in the direction of the wind (the operator standing with his back to the wind). When the pieces are blown out, the victim simultaneously falls down, bleeding from the nose and ears, and, soon after, dies.

By flowers.—A *man's* grave having been opened, the operator goes into the excavation and charms the body until it sits up and protrudes its tongue, which is then at once cut off by the operator, for use as an object very powerful in sorcery. If flowers, together with a tongue thus obtained, be properly charmed, upon a "decorated chair," any one of the flowers, if thrown upon the victim, will cause

him instantly to fall down, bleeding from nose and ears, as though he were attacked by a devil.

According to another informant (who was not a charmer) an oil, very powerful for working evil, may be extracted from a tongue obtained in the manner described.

CHANGE OF APPEARANCE AND INVISIBILITY.

There is a charmed mixture of certain medicines, including the ashes of some hairs taken from a black cat, which, when rubbed upon the face near the eyes, makes the operator, although present in his own shape, appear to other people as a black cat. The assistance of the devil Bâhirâva (see "Thieves (Charms, etc.)") is invoked in the making of the mixture. The charming is not so dangerous as that used for the substance following.

There is a charmed mixture of certain medicines which, rubbed upon the face near the eyes, produces invisibility at night. The charming of the mixture is conducted in a grave less than seven days old, and is attended with extreme danger to the operator, as he summons the "sight" of three powerful devils who, should he make the slightest mistake, set upon him and kill him instantly.

THIEVES (CHARMS USED BY, OR AS A PROTECTION AGAINST).

Charmed sleep.—A stick of some one of the *pas-pengiri* woods is wrapped in a piece of cloth containing a mixture of the three powders *dummala*, *kaṭṭakumanchal* (frankincense), and *kekunamala*, and, shortly before being used, is dipped into coconut oil. The torch thus formed is taken to the house to be entered, and, having been lighted and a certain mantra recited over it, its smoke is blown through the keyhole of the outer door. The inmates of the house will, in consequence, not awaken until sunrise. (The torch is called *Bâhirâva-pandama* (Bâhirâva's-torch); Bâhirâva, a powerful earth-spirit (see below) is appealed to because the Sinhalese usually sleep upon the ground.)

A certain mantra (called "*Nidi-mantra*," "Sleep-mantra") is written upon a piece of palm-leaf which, held in the right hand, is exposed to the smoke of *dummala* powder thrown upon coals with the left. The charmed leaf is thrown into the house to be entered, whereby the inmates are caused to sleep soundly until the person who has thrown the leaf steps into cold water.

Charmed keys.—A key is attached to a cord, and is held by this, in one hand, by the operator, who, absolutely naked (without so much as a string upon his body), enters a stream or a body of water, up to his knees, to perform the ceremony. The operator holds in his other hand a lighted torch, while beside him floats a vessel containing *dummala* powder. Having taken up some of the *dummala*, he throws it upon the torch, and, swinging the key through the smoke thus produced, recites a certain very "serious" mantra 108 times. The charming having been completed the key is taken *immediately, no word being spoken* before its employment, to the lock which it is to open.

Miscellaneous charms.—Thieves sometimes employ a method (which is also used by friends to play a trick on a family) to cause a house to appear suddenly as if filled with serpents, whereupon the people in it rush out, leaving it unprotected. It consists in throwing a small quantity of a certain oil into the flame of a lamp. The oil is produced by placing the dead body of a whip snake (*ehetulla*), after having buried it for a day or two, in a vessel in the sun, and it is afterwards charmed in a cup formed from a human skull.

[See also "Change of Appearance, and Invisibility."]

Protection from thieves.—The *Pirit-yantra*, a yantra founded upon the *Pirit* sutra of Buddha, will keep thieves as well as evil spirits away from a house. There is another yantra, called *Aghoré* (?) which, framed and hung up, will protect a house from thieves.

Oil charmed in a certain manner, if burned during the night, will cause any thieves who may enter the house to come to the lamp in which it is burning, and, standing before it, with the palms together as if in salutation, to wait quietly until captured.

When valuable jewellery is to be interred with a person, charmed oil is sometimes rubbed upon the corpse's head, in order to prevent thieves from opening and looting the grave.

Bâhirâva is a very powerful devil who dwells within the ground, one of whose duties is the guarding of treasures hidden therein, so that only the rightful owners, the descendants of the persons to whom treasures formerly belonged, can obtain them.

Punishment of thieves.—Charms to cause injury or death are employed as a revengeful punishment for the thieves. If the thief be unknown, connection with him is established by means of something with which he has been in contact (such as earth from one of his footprints); should he be known, an effect more powerful, somewhat in proportion to the knowledge possessed, can be obtained. In one case, which occurred during my stay in Ceylon, a charmer whom I knew was called in to cause injury to a man who had run off with some money. The thief's mother, however, having heard of the plan to injure her son and fearing its terrible consequences to him, secured and returned the stolen money. In this instance the charmer received half the amount of the fee to which he would have become entitled had the money been obtained through his actual operations.

Detection of thieves.—For various methods of determining the perpetrator of a theft see "*Divination.*"

GAMBLING.

There are mantras for the charming of coins which, when placed as a stake or part of a stake, invariably (unless conquered by some more powerful magic) cause their owners to win. [A copy of one such charm, famous for its efficacy, from the Galle district, having come into my possession, I was begged (and

even offered presents of books) by several of my acquaintances, charmers themselves, who learned that I had it, for permission to make copies for their own use.]

See also "Amulets (Metallic Amulets)."

AMUSING AND TRICK CHARMS.

Under this heading are given charms performed for the amusement, sometimes malicious, of the operator, or of his companions, or in order to impress spectators with a sense of the charmer's power. It should be noted that charms regarded as amusing in their results are possibly merely enfeebled versions of charms to cause injury; thus, for example, the charm given in *Dem. Cey.*, pp. 65–67, to cause devils to throw stones incessantly at a house until the inmates are driven out, was described to me as a means of causing not very serious annoyance.

In the place of some of her eggs, seven areca-nuts are put beneath a sitting hen, and are allowed to remain until the other eggs hatch. After removal from the nest the nuts are kept until needed for the trick. When a drum (the noise of which may become monotonous, even annoying), which the operator desires to burst, is heard, he places one of the areca-nuts between the jaws of an areca-nut cutter, and having recited a certain mantra over it, closes the jaws of the instrument while the drum is sounding, thus causing, instantly, the membrane of the drum to burst.

If a palm-leaf upon which a certain mantra is inscribed be put beneath a mortar used for pounding rice, any woman who uses that mortar will let out wind in time with each of her strokes; if two women use the mortar together, both will be thus affected. When an occurrence of this sort takes place an investigation is made, and the charm, if it has been used, is at once revealed.

If a palm-leaf upon which a certain mantra is written be hung in a well, each woman who draws water from that well will find that her waist-cloth drops each time she puts her jar of water under her arm to carry it, causing her to put down the jar in order to readjust the waist-cloth. Investigation being made, the hanging palm-leaf is at once discovered and removed.

In order to attract attention Sinhalese call out *hoo*, a sound similar to that made by owls, to each other. If a piece of bark, taken from a tree upon which sit two owls hooting to each other, be charmed and buried by the door of a house, whenever a person comes out of that door he will think that he hears someone within the house calling him, whereupon, returning, he answers, and much confusion results.

(For a charm to cause a house to appear as though filled with serpents see "Thieves (Charms, etc.)")

If some paddy (rice in the husk) be put upon a clean cloth held outstretched by two men, and this cloth be struck, so as to make the paddy jump up and down, by a person who has previously recited a certain mantra over the hand with which he strikes, the grains will burst open and become like paddy which has been roasted.

If a certain mantra be recited by a person he is thereby enabled, having thrown his hair (long hair is commonly worn by the Sinhalese, and particularly by charmers) toward a wall or an archway, to cause it to remain attached there, sometimes so strongly as even to support his weight.

There is a certain kind of magical paste which, when rubbed upon the face just beneath the eyes, causes the person using it to appear, to persons about him, to be doing various extraordinary things, whereas he is actually doing nothing of the kind.

A performance of the same nature as "fire-walking" ceremonies was gone through for me at Colombo. The performer was a Sinhalese workman, who said that the mantra he used in it was a somewhat secret one which had descended to him through his father. The performance was gone through merely to illustrate to me, at a moment's notice, the power of magic, and no charge was made for it. Some Sinhalese who were with me at the time, appeared to be much impressed, although they had seen the trick done before. A piece of iron was heated to redness, while a small boy ran out to fetch a bowl of water. When the water arrived the performer stirred it with one of his tools, meanwhile muttering his mantra over it; nothing, I think, was added to the water. Having placed the piece of red-hot iron upon the ground, and having poured the charmed water over his foot, he placed the foot firmly upon the iron, keeping it there until the smell of burnt flesh became quite strong. He then exhibited his foot, which showed a fresh burn upon the thickened flesh at the heel, and finally stamped upon the ground with it, in order to show that it gave him no pain.

It is possible to charm a target (such as a coconut) so that, when it is hung up, marksmen cannot hit it. My informant (a charmer) told me that he had seen such targets set up on various occasions, and that even Europeans had been unable to touch them.

DIVINATION.

To detect a thief.—The names of all the persons suspected of the theft having been written upon separate sheets of paper, and these having been charmed, all are together put into a fire. All the slips will be consumed, excepting the one which bears the culprit's name.

The names of seven persons suspected of the theft having been written upon seven slips of paper, the slips are laid out with a white cowry-shell opposite to each. The arrangement is then charmed, causing the shell opposite to the slip bearing the culprit's name (if it be there) to slide over to indicate it.

The names of all the persons suspected are written upon separate slips of paper, and each of these is then rolled up into the form of a cylinder. The set of papers having been divided into two parts, one of these is placed upon a man's head, the other upon the ground at his feet. Then, a pair of jointed rods having been formed, each by joining loosely the ends of two sticks of *burulla* wood, two other

men take each one end of each of these rods, and hold them by the arms of the first man, at the level of his shoulders, while a fourth man walks round the group fumigating them by means of *dummala* powder which he throws upon a pot of coals which he carries, and the requisite mantras are recited. The charming causes the joints in the rod to bend toward the pile containing the culprit's name—upward, if it be on the head; downward, if it be on the ground. The pile thus selected is divided into two parts, the other pile being rejected, and the ceremony of selection is repeated, until finally, through successive divisions and selections, one slip only, that which bears the culprit's name, is left.

A certain kind of table, having a circular top, and but one leg, which has been charmed, is employed. The persons suspected having placed their hands upon the top of the table, it leans toward the culprit, no matter where he stands in the circle, nor how he changes his position.

A fowl having been charmed, each of the persons suspected touches in turn the bird, which, silent when touched by innocent persons, will crow at once upon being touched by the culprit. As a means of proving that a person has actually touched the fowl, some oil, which will rub off on the fingers, is put on the bird's back.

By an ordeal.—In order to determine the truth or falsity of a statement, the person making it may be asked to step over something (such as the comb, the head-cloth, or a few hairs of the head) taken from the head of the person disputing it, while repeating at the same time the doubtful statement. Should the statement be untrue the person making it will, it is believed, injure himself severely by slipping, or in some other manner, during the trial, or, if not then, certainly within seven days.

During a religious ceremony—For divination by a *kapuwá*, during a dancing ceremony for the relief of an afflicted village, see "Curative ractices (Curing by invocation of deities)."

By professional diviners.—A book for divination used by itinerant fortune-tellers consists of a number of small ola-leaves (in one instance, twenty-eight), upon each of which is an answer to some question. The applicant, having concentrated his mind upon the question to which he wants an answer, places the cord used for binding the leaves together between them at random; the answer is shown upon the leaf thus exposed.

By omens.—Dung dropped upon a person by a bird flying above him is an omen foretelling circumstances which vary with the bird's species; similarly, dung left upon a sleeping person by a rat or a lizard is a means of foretelling future events. There are books which are consulted for the elucidation of these omens.

There are methods of determining, by the markings of a pregnant woman's blood-vessels, whether her child will be a boy or a girl.

Should something belonging to a person break, towards evening, after he has had a day of ill-luck, the omen is a good one, and indicates that the run of ill-luck is broken; if the thing broken is only of small value its owner is fortunate in escaping so easily.

CURATIVE MAGIC.

DEVIL-DANCING.

Miscellaneous Notes.—Some of the devils represented by the devil-dancer, with the aid of his costumes, are the devils who actually afflict the patient; others are powerful devils by whom the afflicting devils are controlled, and, in the ceremony, ordered to depart; and others (according to some explanations) are devils who are afflicted as the patient is afflicted, and who suggest that the afflicting devil transfer his "sight" from the patient to them, in the expectation that he will have brotherly compassion (as a fellow devil) upon them, and, after leaving the man, will afflict neither them nor him. A list of some of the more important of these devils may be found in *Dem. Cey.*

According to the statements of several devil-dancers the purpose of the performance appears in some cases (not in all; probably in some cases of possession) to frighten, not the afflicting devil, but the patient. Some of the costumes worn, with the action accompanying them, used at night (when devil-dances always take place) undoubtedly affect strongly persons who are not in their customary state of mind.

"Devil-dancing" (taking the term as generally used by the English in Ceylon) is of several types; that of most of the dancers who have been taken on tour to various parts of the world, and of those who, at Kandy, perform (in a manner, it need hardly be said, more spectacular than accurate) for the benefit of visitors, differs considerably from the type illustrated in the photographs.

The dresses used in the dances of the kind represented by the specimens are always, I have been told, red, black or dark-blue, and white. I have, however, seen a dress for representing a devil (though possibly not in a curative ceremony) in which a portion of a dark-blue dress was of an indeterminate orange-brown. Concerning the designs embroidered upon the dresses it was said that the use of lines composed of small triangles (this was in the Colombo district; near Galle, these seem to be replaced by borders of interwoven sinuous lines) in designs and borders is required, but that the flowers and other objects represented (such as cobras, which often appear in conventionalized form) vary according to the personal tastes of the dancers. The dresses and masks employed, which vary in form more or less with the district, are of qualities commensurate with the circumstances of their owners; for example, the costumes shown on Plate XIV, Figs. 1, 2, and 3, are of very good quality, whereas the masks shown on Plate XI, Figs. *k* to *q* inclusive, are very crude, and the dresses which accompanied them were of poor quality. The masks, which are quite often made by the dancers themselves are, for the kind of dancing illustrated, usually about eight or nine in number, and are not used for the representation of all devils; as may be seen in the photographs some of the representations use merely false sets of teeth, or goggles, or paint upon the face. The objects used in dancing are often lent by one dancer to another; when requests to see a dancer's

complete outfit were complied with it was frequently necessary for some of the pieces to be collected from friends to whom they had been lent.

The number and pay of the devil-dancers employed depend upon the wealth of the patient, and the seriousness of his illness. Should a cure not be obtained through the agency of the ceremony the dancers are, as a general rule, not paid. During the dancing the operator recites *yak-kavi* (devil's-verses), wherein, by giving the name, the parentage, the birth, the history, the attributes, etc., of the afflicting devil, he shows that devil that he, knowing all these matters, is the more powerful, and needs to be obeyed in his requests and appeals.

Outfits.—The following objects, forming Sets I, II and III, are from three charmers of a village near Galle. Sets I and II are the complete outfits, as owned by the performers (and with the small exceptions noted, as obtained). Set III comprises only a small part of the material required, and is, presumably, to be eked out by masks and costumes lent by other charmers. The owners of Sets I and III appeared to be of ordinary Sinhalese type; the owner of Set II, a carpenter by trade, was of a rather low type, with a large, projecting jaw. The masks are all of wood; those of Set II were made, the owner said, by himself. Explanations are as given by the owners.

Set I.

(*a*) A drum to be beaten by an assistant while the dancing proceeds. (Plate XIV, Fig. 5, shows a similar drum in use, near Colombo.)

(*b*) A pair of leg-pieces, for tying upon the lower leg (shown in several of the Figs. on Plates XIII and XIV), of leather, each with nine metallic bells. This pair was the only one which could be obtained from the dancers visited, in either the Galle or Colombo districts, except at an exorbitant price. It appears that a dancer, who must continue his exertions often for a long time, becomes accustomed to a set of bells, and finds it difficult to dance with a different set. One leg-piece is shown on Plate XI, Fig. *b*.

(*c*) A jacket covered with bits of blue cloth attached only at their ends, giving to it a shaggy appearance. Generally worn with the opening at the back. (A similar jacket is shown in use in several of the photographs on Plate XIII).

(*d*) A pair of trousers, of material like that of (*c*).

(*e*) A cap. of material like that of (*c*).

(*f*) A cap, similar to (*e*), but smaller.

(*g*) An embroidered red jacket (no skirt with it).

(*h*) A blue canvas jacket (no skirt with it).

(*i*) A cap covered with bunches of red thread, giving the appearance of a great head of shaggy red hair.

(*j*) A red tarboosh (cap in the form of a truncated cone, worn by Mohammedans of the Nearer East), to be used in the dress for Demala-Sanniya (devil in the form of a Tamil).

(*k*) A black mask (Plate XI, Fig. *k*); Demala-Sanniya.

(*l*) A black mask (Plate XI, Fig. *l*); Amukku-Sanniya.

(*m*) A black mask (Plate XI, Fig. *m*); Nâga-Sanniya (the coconut-fibre forming the beard is to be worn round the neck).

(*n*) A black mask (Plate XI, Fig. *n*); Golu-Sanniya (the lower jaw seems to be missing).

(*o*) A black mask (Plate XI, Fig. *o*); Veḍi-Sanniya.

(*p*) A black mask (Plate XI, Fig. *p*); Kora-Sanniya, a devil for representing a person afflicted by a malady causing lameness.

(*q*) A dark-green mask, with great red lips (Plate XI, Fig. *q*); Copala-Sanniya (perhaps Gopaḷu-Sanniya, the devil who afflicts cattle (?)).

(*r*) A large false mouth, with teeth formed of cowry-shells (Plate XI, Fig. *r*).

(*s*) Upper or lower sets of teeth, formed of shells (one cowry-shells, two clam-shells) sewn upon cloth, for inserting in the mouth.

(*t*) Upper and lower sets of teeth, formed of cowry-shells.

(*u*) A pair of goggles, with green glasses, to give the effect of large green eyes (a similar pair is shown in use in the picture of Daha-aṭa-Pillépali (Plate XIV, Fig. 1). (Not obtained.)

(*v*) A musical pipe (Plate XI, Fig. *v*) used in certain dances.

(*w*) A snake (cobra) to be used with the Nâga-Sanniya costume. (Plate XI, Fig. *w*.)

(*x*) A small wooden doll, painted pink, in the form of an infant (Plate XI, Fig. *x*). Said to be used in a dancing ceremony to ease the pains of labour (see note to "Curative Ceremonies (Barrenness)"). There is a small nail in the top of the head, apparently for attaching a cord for suspension.

(*y*) A canvas bag, of ordinary form, for containing the objects and carrying them about.

Set II.—

(*a*) A pair of leg-pieces, similar to those of Set I. (Not obtained.)

(*b*) A jacket, like (I, *c*).

(*c*) A cap, like (I, *e*).

(*d*) A pair of trousers, such as are worn by Europeans, blue, for wearing with (*b*) and (*c*) Very dilapidated. (Not obtained.)

(*e*) A cap to which many bits of yellowish rope are attached, for giving the appearance of a head of unkempt long hair. To be used as part of the costume for Maru-Sanniya.

(*f*) A cap of thin red cloth, probably corresponding to (I, *j*).

(*g*) A costume of blue cloth, with embroidery and applied red and white decoration. A jacket, a long underskirt, and a short overskirt (similar to costume, from Colombo district, shown on Plate XIV, Fig. 6).

(*h*) A crown, made of paper, painted with devils' faces and partly covered with sheets of mica, and with wings at the sides. Similar to III (*d*), shown on Plate XII, Fig. 5; and to the one shown in use in Figs. 1 and 3 of Plate XIV.

(*i*) A black mask, with projecting eyes, a low forehead, tusks, and a protruding tongue; Maru-Sanniya.

(*j*) A black mask, with a snake rising from the forehead; Nâga-Sanniya.

(*k*) A black mask (Plate XII, Fig. 1), with lower part of face projecting, with a small beard (not seen in photo), and upper teeth of shell; Kana-Sanniya.

(*l*) A black mask, with hair and beard of fur; Golu-Sanniya.

(*m*) A black mask, low-browed, with high cheek-bones, and upper and lower teeth (of wood) showing; Veḍi-Sanniya.

(*n*) A black mask (Plate XII, Fig. 3), with beard made of wool; Gulma-Sanniya. When this mask is used the mouth is filled with water, and noises are make in the throat, after which the water is suddenly spat out, as if vomited up.

(*o*) A black mask (Plate XII, Fig. 2); Dêva-Sanniya.

(*p*) A black mask, with the mouth twisted to one side; Kora-Sanniya. (See I, *p*). (Possibly, properly, Amukku-Sanniya.)

(*q*) A false mouth, with teeth of shell, and beard, arranged to give a twisted appearance to the face when worn (Plate XII, Fig. 4).

(*r*) A set of upper, and a set of lower teeth, to be inserted in the mouth, producing thus a horrible tusked appearance; one set, with a pair of small boar's tusks (or large rodent's teeth), to go under the upper lip; the other, with pieces of shell representing teeth, to go under the lower lip. When Maru-Sanniya is represented (and the mask No. (*i*) is not employed) the face is painted with soot (taken from the bottom of a cooking pot), the two sets of teeth are put into the mouth, and a beard of fibre rope and a moustache of bear's hair are put into place; the cap No. (*e*) is also worn. Fearful noises are made with the mouth, the inserted sets of teeth aiding in their production.

(*s*) A musical pipe, like I (*r*).

(*t*) A snake, like I (*w*).

(*u*) A cotton cloth bag, for containing the objects and carrying them about.

Set III.—

(*a*) An embroidered red jacket (Plate XII, Fig. 6).

(*b*) A cap of woolly substance.

(*c*) A wig of black hair.

(*d*) A crown (Plate XII, Fig. 5), made of paper, painted with devils' faces and partly covered with mica, and having several small circular mirrors attached. (See notes to II, *h*.)

Representations of devils.—The following list relates to a series of photographs

of representations of devils given by a devil-dancer (who was, by profession, also an astrologer) at a village near Colombo; the titles and their explanations are as given by the performer and verified by another charmer who was present. The intention was that eighteen devils should be shown, but one (3), by mistake, was represented twice, although by the use of different materials, so that one representation is lacking.[1] The photographs which are reproduced on Plates XIII and XIV show the principal features of the costumes. The changing about of the parts of the costumes, and the variation of the features with paint (soot, and white powder), false features or masks, are more considerable than the photographs indicate. The costumes and masks used were of the same nature as those described as included in the outfits from Galle; the costumes worn in Figs. 1, 2 and 3, Plate XIV, are, however, of better material and workmanship than the corresponding ones from Galle, and are ornamented partly with large glass beads. The leaves, which have so large a share in a number of the costumes, are those of the *burulla* (or *gurulla*) tree. A very fair idea of the normal appearance of the performer may be obtained from Fig. 1, Plate XIII, in which he has prepared himself to represent a Tamil. As lack of time prevented him from assuming the two costumes illustrated in Figs. 1, 2 and 3, Plate XIV, two assistants of his are shown in them. The names of the devils are in many cases descriptive; thus, *Weḍda* is a Veddah, *Gini* is heat, *Śítala* is cold, etc.

(1) Demala-Sanniya; a head, or principal Tamil devil, who orders the inferior Tamil devil afflicting the patient and causing him to speak unknown words, to relieve him. Plate XIII, Fig. 1.

(2) Maru-Sanniya; a devil who comes near to dying men. Plate XIII, Fig. 2.

(3) Amukku-Sanniya; a devil for representing a person ill with a malady which twists the features (or, as shown in the second representation of this, which twists the body). Plate XIII, Fig. 6.

(4) Nâga-Sanniya; a devil for representing a person with a malady which causes him to dream of all kinds of serpents upon his body. Plate XIII, Fig. 3. (The cobra shown dangling in front is like No. *w*, Set I; Plate XI, Fig. *w*, and No. *t*, Set II.)

(5) Kana-Sanniya; a devil for representing a person afflicted with a malady which causes blindness in sickness. Plate XIII, Fig. 4.

(6) Golu-Sanniya; a devil for representing a person afflicted with a malady which causes dumbness in sickness.

(7) Veḍi-Sanniya; a devil who afflicts with a sickness which kills as quickly as a gun is fired, *i.e.*, instantaneously. Note the gun in Plate XIII, Fig. 7.

(8) Weḍda-Sanniya; a devil in the form of a Veddah (an aboriginal of Ceylon) who afflicts with a sickness which kills as quickly as an

[1] I think that the missing representation is probably that of Kora-Sanniya, a devil for representing a person who is lame: compare Sets I and II, Nos. (*p*). For list of eighteen devils causing effects of these kinds, see *Dem. Cey.*, p. 26.

arrow reaches its mark; *i.e.*, not quite instantaneously. Note the false bow and arrow in Plate XIII, Fig. 8.

(9) Yevuḷun-Sanniya; a devil for representing a person afflicted with a malady causing trembling of the body. (The performer, in posing for this photograph, wished to keep his person continually trembling, in the manner proper to the costume, saying that if he were to remain motionless, as required for the exposure, the representation would not be complete.)

(10) Ṣítala-Sanniya; a devil for representing a person afflicted with a malady causing him to be cold.

(11) Gini-Sanniya; a devil for representing a person afflicted with a malady causing him to burn with terrible heat. Note the small fire in Plate XIII, Fig. 10.

(12) Bíta-Sanniya (Grünwedel's Abûta-S. ?); a devil for representing a person, afflicted with melancholia, who does not care to go about, but likes to lie upon a mat (shown in Plate XIII, Fig. 5) during the whole day. During the performance charmed rice is spat out, and a charmed pot is dashed upon the ground and broken, in order that, when the dancer has brought the devil's "sight" from the patient to himself, its influence may be broken.

(13) Okkara-Sanniya (a name of Gulma-S. ?; compare No. *n*, Set II); a devil for representing a person afflicted with a malady causing vomiting. Plate XIII, Fig. 9.

(14) Dêva-Sanniya; a devil who destroys any village on which he "takes sight," by causing its people to sicken, one after another. Note goggles on the eyes. Plate XIII, Fig. 11.

(15) Kôla-Sanniya; a head, or principal devil of those causing madness; upon seeing this devil the afflicting, and minor, devil removes his "sight" from the patient.

(16) Kumára-Pillépali; a head, or principal devil of the eighteen devils who cause sickness; before afflicting *women* with sicknesses the lesser devils must obtain his permission. Plate XIV, Fig. 2, back-view in Fig. 3. The dress is red with white ornamentation, and the head-kerchief of three colours—red, white and black—only. The decorations of the costume are made of fresh young leaves of the coconut-palm. One of the torches held is shown on Plate XII, Fig. 8.

(17) Daha-aṭa-Pillépali; a head, or principal devil of the eighteen devils who cause sickness; before afflicting *men* with sicknesses the lesser devils must obtain his permission. Plate XIV, Fig. 1, back-view in Fig. 3. The dress is black, and the crown is of paper painted with devils and covered with mica (see Plate XII, Fig. 5, for similar crown; compare also Sets II and III.)

PUNISHING DEVILS.

There are demons of a minor variety (described to me as being a kind of evil ghost; probably identical with the spirits of those who have died with a feeling of hatred (*Dem. Cey.*, p. 19)) who may "possess" a person, or otherwise cause him great trouble and misfortune. A person afflicted by a demon of this kind applies to a charmer, who may proceed to imprison the offending spirit, with the double object of ridding the victim of his immediate attentions and of frightening him so that he will never return after his punishment is completed. A time-limit for the imprisonment is always set, and named in the ceremony—seven hours, seven days, seven weeks, seven months, or, at the utmost, seven years—at the expiration of which the charm ceases to act and the demon becomes free. A charmer who fails to set a limit of this kind commits a great sin, since he punishes the unfortunate demon too severely, and is very likely thus to bring misfortune upon himself. For this reason, even if his employer does not wish him to do so, a charmer always sets a time-limit, seldom one of the shorter periods, or the longest, most often seven months. Three methods of imprisoning demons are given below.[1]

By nailing.—Having charmed an *iron* nail, and also the tree to which the demon is to be affixed—for one kind of demon a jak-tree is taken, for another a *ruk-attana*-tree (*Alstonia*, or *Echites, scholaris*)—the operator charms the demon himself so that he stands against the tree, a change in the colour of the bark indicating his position, and then drives in the nail. The tree is not injured by the operation.

By tying.—Seven white threads, each about 2 to 3 feet long, are prepared, and in them a loop is made which is set behind a betel-leaf resting upon a suitably "decorated" chair (table of offerings). The operator proceeds with the charming until, at a certain point, the betel-leaf falls forward, pushed by the demon's hands, when the ends of the threads are at once pulled, closing the loop tightly round the demon's wrists. The threads, holding the imprisoned demon, are then taken to a tree having two limbs separated by a distance equal to about the height of a man, and, with an accompaniment of charming, are tied to the upper limb. The demon, unless set free before, remains fastened in place, with the lower limb to rest himself upon, until the expiration of the sentence. If by chance some other charmer, or even an ordinary person acquainted with the proper mantras, sees the knotted string upon the tree, he may set the demon free by untying the knots, since he thereby acquires merit. But should the demon be freed by a person ignorant of the charms proper to the occasion, he will apply his evil attentions to his rescuer.

[1] In *Dem. Cey.*, p. 102, reference is made to a method whereby a possessing demon is "bound and nailed" to a tree. A nail made of an alloy of five metals is charmed and driven into a tree, after which a saffron-stained thread, similarly charmed, and knotted, is coiled round the nail.

In *Eth. N. in S. India*, p. 313, is given a method in which the demon is caused to climb a tree, into which three iron nails, below which the demon cannot descend, are driven. Compare also (*ibid.*) pp. 329 and 331.

By throwing into the sea.—A box, made either of an alloy of the five metals or of bell-metal (an alloy considered especially suitable for some kinds of charming), has placed within it a mixture of a considerable number of substances, ground together with a little *ghee*, and one end, coiled, of a saffron-stained thread, and, with its cover open a little way, is charmed upon a "decorated chair." As the charming proceeds, the thread gradually coils itself within the box, until it is entirely within. At the moment the end of the thread disappears the lid is snapped down, imprisoning the demon within the box, where he may sometimes be heard making a scratching sound. Then, in a boat, the box is taken out to sea, and, the boat having been stopped and certain mantras recited, is dropped overboard.

CURATIVE PRACTICES.

Under this heading are grouped, mostly under the troubles for whose relief they are applied, methods of curing by means of ceremonies, either magical or more or less religious in nature; of performances to which no occult character is attached; of medicines, applied either internally or externally; and of amulets, whose virtues may be either intrinsic or acquired. Amongst the principles utilized will be found those of the transference of the trouble to some inanimate object, the decrease of the trouble in sympathy with something decreased by the operator, the cutting of the trouble in sympathy with something cut by the operator, the transference of curative magical virtues to a patient by means of fumigation or by the passing of objects over his body, the use of charmed water (or the "milk" of coconuts) for sprinkling or for drinking, the fixation of charms by the tying of knots, and many others. Other matter relating to the subject may be found under the following headings:—"Protection of infants," "Protection of cattle," "Use of garlic in magic," "Use of iron in magic," "Impurity (Psychical uncleanness)," "Devil-dancing," "Punishing devils," "Votive offerings," and (in various divisions) "Amulets."

Charmed medicines.—Charmed medicines, which are used very extensively by the Sinhalese for curing people or animals, may be taken internally, applied externally, or carried as amulets. They include natural substances, special compounds, and ordinary medicines (such as are prescribed by physicians) to which an additional efficacy has been imparted by charming. The recipes given for the preparation of the special compounds often give the mantras to be used for charming them, as well as the ingredients and the proportions in which these are to be combined.

Charmed medicines are also largely used for protective and for magical purposes, references to a number of which may be found under the headings of various maladies, and of "Amulets (Medicinal substances)," "Charms to secure favour," "Amusing and trick charms," and "Change of appearance and invisibility."

For method of protecting medicines while being made see "Amulets (Miscellaneous notes)."

Curing by charmed threads.—A "decorated chair" having been prepared, three

threads (or in some cases only one) yellowed with saffron are hung upon its back, and charmed by means of a ceremony of the usual kind. When the ceremony is finished the operator takes the threads at one end, and, reciting a certain mantra over them, withdraws them from the chair. Taking them to the patient, he lays them upon the patient's head and recites a mantra over them. He then ties one thread round the patient's neck, letting the two others rest upon the patient's shoulder, a second upon the arm, holding the third meanwhile in front of the patient's body, and the last round the waist, in each instance accompanying the tying by the recitation of a mantra. (When one thread only is used the latter parts of the operation are, of course, omitted.) The patient should keep from impurity during the seven days following the ceremony.

Another kind of charmed thread is called *ępa-núlá* ("bail-thread"), being for the purpose of "bailing-out" the patient from the devil who afflicts him. The thread, which is coloured with saffron, is knotted seven times, a separate mantra being recited seven times for each knot, and the knot being drawn a little closer at each repetition, until at the seventh it is pulled quite tight. A vow is made, in addition to the performance of the charming ceremony, to the afflicting devil that when the sickness has been removed a further ceremony, at which the thread will be broken, will be executed. After the thread has been removed at the second ceremony, it is thrown by the patient into running water, or is burned in the flame of a magical torch, the idea underlying its disposal thus being (according to a charmer) somewhat to the effect that as things are washed away by water, or burned away by fire, so has the affliction been removed.

The virtues are imparted to another variety of curative threads by means of the blessings of a priest.

On Plate XV (A), Fig. 1, a curative thread with twenty-four knots, from a man's wrist, is shown. See also "Bleeding."

Curing by invocation of deities.—A picture of the deities of the nine planets is mounted upon a frame of strips of bamboo, being held in place, by strips of the white inner bark of a plantain tree, along the lines separating the deities one from the other. This is brought into the patient's presence and is placed facing him, but hidden from him by a white cloth held up in front of it. Dancing and the recital of verses are then proceeded with until, at a certain point, the picture is exposed to the patient's view, and it remains so until the conclusion of the ceremony.

For the relief of a community attacked by an epidemic there is a ceremony, performed by a *kapuwá*, in a temporary building (or "shed") erected especially for the purpose. A picture of the deity Kandaswámi is put up within the shed upon the rear wall, and the villagers, including all the patients who are able to come, salute this picture upon entering the shed. The *kapuwá* dances in a decorated space before the shed, and during his performance, having summoned the malignant devils who caused the epidemic, tells them of Kandaswámi's power (which, including the ability to send these disease devils away from their victims, will be

exerted if necessary as a return for the pleasure given by the attentions paid). The malignant devils, seeing Kandaswámi's picture before them, become terrified, and remove their "sight" from the afflicted community. With money, which has been collected before the ceremony, rice and vegetables (excepting a few kinds) have been purchased, and during the ceremony this food, without the addition of any flesh (even that of fish), is cooked, but cooked entirely by men. The cooked food is distributed at the conclusion of the ceremony, a part being eaten by the persons present, and the remainder being carried very reverently, and so carefully as not to lose the least particle of it, to be eaten by those villagers who were unable to come.

Betel leaves are brought before the ceremony, by persons wishing to know something of their future, as a present to the *kapuwá*. At a certain point in the ceremony the *kapuwá* stands upon burning coals, trembling and speaks, in a language not understood by those present, to the deity. He then tells an attendant to bring to him the various persons whom he names, and who have given him the betel leaves, and then, as each is brought to him, he predicts as to that person's health, business, profession, fortune, etc., and advises as to what should be done to avert any ill-luck which may threaten.

See also "Devil-dancing."

Employment of votive offerings.—When a vow is made at a Buddhist or Kapuist shrine a small coin is given; after the request has been granted a votive offering is presented to the shrine. The offerings are generally of silver, and of the nature of (*a*) representations of the objects in connection with which the vows were made, (*b*) gifts to the deities, or (*c*) representations of the deities. The standard price for an ordinary silver offering appears to be 25 cents ($\frac{1}{4}$ rupee), of which one-half is supposed to be for the material and one-half for the work, although actually the value of the silver used in such an offering is often less than $12\frac{1}{2}$ cents. Gold offerings of the same type, though very thin, are, of course, more expensive. These are the offerings commonly given, but there are others given by wealthy people, wherein the spirit, rather than the mere letter (as in those quoted) of the promise made, is adhered to.

The offerings are made by special silversmiths, and must not be made by people of low caste; they should be kept from any contamination, either physical or ceremonial, before presentation. After they have been given they should not be taken away from the shrine. It appears, however, that they may be bought by persons wishing to make offerings, but only to be returned immediately. When enough of them have accumulated they are made into a gold or silver image by a silversmith connected with the temple. It is believed that a curse will fall upon persons who make other things from them, wherefore ordinary silversmiths will have nothing to do with old votive offerings.

Sometimes a coin is vowed in the event of a cure, and is wrapped in paper and tied upon the afflicted part of the patient, being retained there until the cure is considered to be complete, after which it is taken to the shrine at which the

vow has been made and is tied, in a bit of rag, to the railing in front. Should the patient die the coin is given to the poor.

Gem miners, after success in their operations, present some rough precious stones, of poor quality and of very little value, to the shrines at which they have made their vows.

The offerings shown on Plate XV (B) are all from one temple, and, unless otherwise noted, are of silver. Their forms and purposes (as explained to me) are as follows:—

(1–5), five male figures; (6), one gilt plate with male figure; (7, 8), two gold male figures; (9), one female nude figure; (10, 11), two female skirted figures: given after the successful accomplishment of any result requested.

(12, 13), two boys (indicated by small size); (14), one girl: given after a safe delivery (or, probably, when a child has been cured, etc.).

(15, 16), two eyes (large size indicates that they are men's); (17), one eye (small size indicates that it is a woman's): eye troubles cured.

(18), one tongue: tongue cured or speech restored.

(19), one throat (a short tube); (20), testicles; (21), one leg; (22, 23), two arms: cure of the parts represented.

(24), one dug-out canoe; (25), one flat-bottomed boat: promised when the boat is begun, and given when the boat is placed in the water, to cause the boat always to be protected by the deity to whom the offering has been made.

(26), one house (formed like a shed): promised when the house is commenced, and given when it is finished, to cause the house always to be protected from fires, floods, or like catastrophes.

(27), one plantain tree; (28), one coconut palm: promised when a new planting is started, and given when it commences to bear, being bought with money obtained for the first-fruits of the planting.

(29), one field (of poor quality gold, gilded): promised by a person wishing to obtain a plot of land, or disputing or about to go to law about land, and given in the event of his success.

(30), one elephant; (31, 32), two bullocks: success in a matter connected with the animal represented.

(33), one cobra: a cobra who came often to a house (and could not, because of the occupant's religious scruples, be killed) has been caused to remain away. (The extended position indicates that the snake is departing.)

(34), one spear (attribute of a deity); (35), one sacred lamp; (36), one chain (probably, in this case, the length of a child's height): there has been promised, in the event of success, a silver object of the kind represented.

(37, 38, 39), three coils of wire, each the length of a person's height: given after a result desired has been attained, in fulfilment of the promise of a gift as high as the applicant.[1]

(40–46), seven plates bearing the figure of the deity Vibhísana (who cures the sick, gives children to the childless, etc., whose shrine is tended by a *kapuwá*); (47), one gold plate bearing figure of Vibhísana: given after success in a matter in which the deity's aid was invoked.

Curing by substitution.—In one system of curing the operator, having protected himself by charming, offers himself, mentioning the various parts of his body, to the afflicting devils as their proper prey. These devils, however, when they have transferred their "sight" as suggested by the operator, find that they cannot injure him, because of the charming by which he is protected.

Effect of evil eye or envy.—The hands and the body should be washed, one morning, the evening of that day and the following morning, with the water in which a blacksmith has quenched his iron.

Some water from a "new well" (see "General Notes (Miscellaneous notes)") having been put, together with a twig of a lime-tree, which has naturally seven leaves (none having been removed) into a new pot and charmed, the patient is sprinkled with the water by means of the twig.

Seven limes (or lemons) are charmed by means of a mantra and fumigation with *dummala* powder, and are then placed with some of the wild fruits of the *ahu* tree (*Morinda citrifolia* or *Morinda tinctoria*), the sight of which being feared by devils, will keep such away from the limes. Each lime in succession is placed between the jaws of an areca-nut cutter, and is held over some part, from the crown of the head to the feet, of the patient's body, when, a certain mantra having been recited, it is cut by closing the jaws of the cutter.

Effect of sorcery.—A pumpkin, upon which is drawn the picture of a man (representing the charmer who performed the injurious ceremony), is charmed, upon a "decorated chair," by the performance of dancing and the singing of charming verses, interspersed with blessing verses at intervals, during an entire night. In the early morning the operator, accompanied by three assistants, goes to a stream or a body of water, the charmed pumpkin, covered by a white cloth held by two men walking respectively before and behind it, being carried on the head of the third assistant. The operator, upon arrival, recites a mantra over the water in order to protect Mani-mekhalá-wa (?), a water spirit, from any harm arising from the forthcoming ceremony, and then having received it from its bearer, places the pumpkin in the water with the picture uppermost. Then, taking a knife which has been suitably charmed, he strikes its point upon the stomach of the figure, whereupon the devils immediately cause the pumpkin to turn in the water, in such a manner as to be cut in two by the knife; at the moment that the division takes

[1] This explanation differs apparently from that given in *Eth. Notes in S. India*, p. 353, where the wire is said to *represent* the applicant, seemingly in like manner to a human figure.

place the operator and the pumpkin are together drawn beneath the surface, and the operator becomes insensible. When, a moment later, the operator returns to the surface, he is revived by his assistants, by the use of water, which, in anticipation of its need, has been previously charmed. If the operation has been successful the halves of the pumpkin and the water nearby will be red.

The operator next goes to the patient and dances and recites verses, accompanying his actions by the taking up in his right hand of 108 small wicks, in succession, each of which he lights from a flame in his left hand, and then extinguishes in a dish of water containing some areca-flowers. He then takes eight limes, and, holding each in succession between the jaws of an areca-nut cutter and having recited a mantra, cuts it; of these limes, seven are, when being cut, held over various parts, from the crown of the head to the feet, of the patient's body, after which the eighth one, held in the cutter, is moved up and down three times in front of the patient, in order that any part omitted by the seven may be included before it is cut. The pieces of the limes are put into the water containing the extinguished wicks. By this method not only is the patient cured, but the charmer (not his employer), who caused the injury, has his charming turned back upon himself.

Bleeding.—Bleeding should always be stopped as quickly as possible, because the least appearance of blood attracts Ríriyaka (the devil of blood), who will endeavour to make the patient ill, in order to obtain more of his blood. (See also "Injury of Enemies.")

(The following method is applied only for the cure of prolonged bleeding due to natural causes, and not for that of bleeding due to sorcery.) A string formed of a red, a black, and a white thread twisted together is charmed, hung upon the back of a "decorated chair," in some spot frequented by the devils, and is then taken to the patient. The patient having lain down on his back, the string is placed upon his head, and a certain mantra is recited. It is then pulled over the whole length of his body, being stopped in order that the mantra may be recited at each point, at the forehead, the nose (where its effect covers the openings for the eyes and ears as well), the mouth, the throat, the breast, and the navel, seven points in all. Then the string is drawn to, and stopped at, the private parts, where another mantra, one of an abusive nature, is said. Finally the string is tied about that part of the body where its effect will be greatest: for bleeding from any of the openings of the face, round the neck; for bleeding from the lungs, round the arms; for prolonged menses, round the waist, the patient having first drank of charmed water, or of the liquid of a charmed coconut.

Children's Sicknesses.—(The following method is applied for the cure of sick children between the ages of three days and seven years.) An image made of boiled rice, with the features marked in colours, is placed in a basket of the kind used for cleaning rice, and is brought, hidden behind a cloth held up as a curtain by a couple of men, into the presence of the sick child. Verses, requesting the deities' permission to go on, having been recited, the cloth is removed and the

operator proceeds to dance, holding a bell in one hand and an areca-flower in the other, meanwhile reciting devil-dancing verses interspersed (at intervals separated by 108 verses) with mantras. At the conclusion of this dancing he takes a handkerchief of three colours (red, black and white, presumably), and, after dancing with it, rubs it three times lightly over the child, as though rubbing the disease away, and causes the child to push its hands outward, over its face, three times, as though clearing the disease away, after which the handkerchief is thrown upon the rice image. Finally some one (such as a servant) takes the basket with the image in it to a cross-roads (silence, not looking behind, etc., are not essential in this part of this ceremony), where they are left. After a time (usually between half an hour and one hour) the evil influences transferred to the image depart from it, and the birds, which until then have kept aloof, come and eat the rice. The handkerchief, when the work in which it figures is finished, is taken by the operator to be kept for similar use on future occasions.

Dogbite.—The patient is treated in the following manner in order that he may not develop hydrophobia. He is taken to an empty house, and is supplied entirely with perfectly new things—clothes, pillows, sheets, eating-, drinking- and cooking-vessels, etc.—which are kept exclusively for his own use during his treatment, and he is never left unaccompanied by some other person, even for a moment. A charmed thread is put round his neck, another upon his arm, and a third round his waist, and he is sprinkled, each morning and evening, with saffron-coloured water, which is also thrown about the house. At an early hour of the morning of the third day he is taken to a stream nearby (provided that it is not frequented much by women; should it be, a "new well" is dug), and he is bathed with exactly seven potsful of water from it charmed in a new pot. He is then brought back to his house, where he is kept during four days more (making a total of seven days of treatment), after which he is free to do as he pleases, excepting that during the period of three months following he should not eat pork, and should preferably remain otherwise uncontaminated by impurity.

Snakebite.—There are stones for the cure of snakebite, black, and of considerable value, which, when placed upon the wound, adhere to it until all the poison has been withdrawn, after which they fall off. In order to remove the poison from the stones, these latter are put into cow's milk for a time after being used. (A stone of this kind, appearing, from the description, to be of the ordinary Indian type, was kept by the high-priest of the temple at my informant's village, and was lent to people who required its services.)

There are also charmed medicines, artificially formed, the action of which in withdrawing the poison is like that of the natural stones.

Snakebite may be cured by the use of charmed threads, by exposing the patient to the smoke of charmed substances, or by the recitation of mantras.

It is sometimes necessary to give instant treatment for snakebite while still at a distance from the patient, as when word has been brought to a charmer who cannot reach the patient quickly. When such is the case the operator charms, by means

of a certain mantra, his right hand, and then lightly strikes the messenger's head or face with it.

Ratbite.—A piece of gold, having been charmed, is rubbed in woman's milk and drank.

Choking by bones or food.—The patient, or someone by him, recites a certain mantra over some food, such as cooked rice, or a fried plantain, which is then swallowed. Or the same mantra may be recited over some water, which is then drank.

The same mantra may be recited over the palm of the hand, which is then used to pat the patient's back.

A mantra (not specified, presumably the same as above) is recited, either by himself or by someone by him, over a hair of the patient's head, which hair is then pulled out.

Drunkenness.—Seven small stones (pebbles), having been charmed on seven different days, are dropped into some arrack, which, given afterwards to the patient to drink, causes him thereafter to have a distaste for arrack.

A charmed leech is allowed to swim about for a time (not too long, lest the liquor become poisoned) in some arrack, which, afterwards given to the patient to drink, gives him a distaste for arrack.

Barrenness.—The woman is dressed in white, and dances are performed and verses recited before her. A new earthen pot containing some coconut leaves and a little earth, and decorated with young coconut leaves, of some of which a handle is formed, is kept near to her during the ceremony, and is hung up in the house when the ceremony is completed. At the time of the ceremony a vow is made to the devil *Kaḷuyaka*[1] that if a child be born, dances, offerings, etc., will be given to him. Soon after a child has been born, as a result of the ceremony, it is taken to a *kapuwá* at a temple, who blesses the child, and is told by the mother that the child is the result of a vow which, within a time which she specifies, she will fulfil. The *kapuwá* then makes himself responsible, to the benevolent devil by whom the child has been given, for the child until the vow is fulfilled. Usually the *kapuwá* refuses to assume responsibility for the child for more than a few months, but, except for this, it appears that any period, even one of years, may be allowed for the accumulation of money sufficient to pay for the offerings and dances required. The children born as a result of this ceremony are always fine healthy infants. Should it happen that, for some reason, the vow is not fulfilled, both mother and child will die, and other misfortunes will follow.

[1] It was explained to me that children are given by *Kaḷuyaka* ("Black Devil"), and in the ceremony following this one the idea appears again. In *Dem. Cey.*, p. 28, he is spoken of as exerting his malign influences particularly upon women and children; he has, however (p. 27), an apparitional form, called the "Black Demon of the Dewol Gods," which, from the nature of these ceremonies, is that, I imagine, in which he here appears. The explanation given did not seem to suggest that *Kaḷuyaka* appeared as a conquered and subservient devil.

The woman, clothed in white, stands within a compound decorated for the occasion. A devil dancer dressed in woman's clothing, and having breasts formed by stuffing out the bosom of the jacket (see Plate XIV, Fig. 8) bears in his arms a wooden doll (Plate XII, Fig. 7; see also No. *x* of Set I[1] of the devil dancers' outfits) representing a child, which he rocks to and fro as if to hush its crying. After dancing, this man goes about, from one to another of those present, collecting money (explained to me as similar to money paid to a physician) from them. When the collection has been completed, a second man, dressed to represent *Kaḷuyaka,* who has meanwhile remained hidden from those present, suddenly gives a shout, rushes out with a second shout, and then, taking the doll from the performer who has been dancing with it, and shoving him forcibly away, gives a third shout. Then, with great courtesy, and showing much respect towards her, *Kaḷuyaka* presents the child to the patient, who bends her head in thanks. The doll is taken by the patient round all the company present, by whom it is kissed and fondled just as if it were a real child, and it is finally taken home by the patient, to be kept in a cradle till she conceives. When conception is assured, the doll, accompanied by many presents, is returned to its owner.

The basis of the following medicine is an eastward-growing root of the *Natnáran*-tree (Common citron, *Citrus medica*), ground with the milk of a pure-black cow. Before the root is removed from the ground a ceremony is performed over it. A space having been cleared and cleaned all around the tree, some fresh saffron-coloured water, drawn in a new pot, is sprinkled about it by means of an areca flower, and a kind of fence, formed of small bamboo sticks and young coconut-leaves, is set up round it. Oil made entirely by a man (not by a woman) from a coconut which, to ensure its cleanliness, has been brought (not fallen, nor been thrown) down from its tree, is put into two lamps formed of the halves of a papaya fruit or of a young coconut, with wicks of clean-washed cloth twisted by hand (not rolled, as is usual, upon the thigh), which are set beneath the tree. Beneath the tree there are also placed some sweet-scented flowers upon a plantain-leaf, some bits of camphor upon betel-leaves, some scented water, etc. At morning and evening of three days the lamps are lighted, incense-powder (the savour of the smoke of which is liked by the benevolent devils and hated by the evil) is burned, and ceremonies, including the recital of verses resembling mantras, are performed. When the charming of the root selected is completed it is removed, early in the morning, and taken to a house. It is then ground, with the milk of a fine pure-black cow, upon a clean stone which, together with the place where it rests, has been sprinkled with saffron-water for purification. The substance is charmed, before being removed from the grinding stones, upon the completion of the grinding, and then that upon the upper stone (the grinder) is mixed with some

[1] This second doll, from Galle, was said to be used in a dancing ceremony to ease the pains of childbirth, details of which were not obtained. My interpreter on this occasion had only the ordinary man's knowledge of ceremonies, and, though interpreting in good faith, may have been misinformed, or have misunderstood.

of the black cow's milk, and is drank by the husband, while that upon the lower stone (the table, or mortar), similarly mixed, is drank by the wife. Upon the day of taking the medicine the husband and wife should, preferably, take no other food save, if necessary, a little milk. Before taking the medicine both should bathe and should dress themselves in clean clothing. Intercourse may take place at any convenient time thereafter, but conception is assured within three months of the taking of the medicine, and the birth of a child within one year. The medicine is effective only in the cases of people within the ages commonly suitable for the production of children, and is valueless for people who are beyond those ages.

Control of sex of child.—If a *female* child be desired the wife should, until conception takes place, sleep at her husband's *left* side. When intercourse is about to take place the husband should descend from his side of the bed, and, going round the *foot* of the bed, he should approach from his wife's *left* side. After intercourse he should descend upon the same side, and return to his place by the way he came. Furthermore, the wife should, until she conceives, bathe only on the *odd* days after her menses—the first day, the third, the fifth, etc. In addition, a yantra, in which there is a figure of a girl, may be kept over the bed.

If a *male* child be desired the wife should sleep at her husband's *right* side, and he should pass round the *head* of the bed to her *right* side, afterwards returning to his place by the same route. The wife should bathe, also, only on the *even*—the second, fourth, sixth, etc.—days after her menses.

Lack of milk in nursing.—If due to the action of an evil eye or of devils, and not to natural causes, a lime-tree twig having naturally seven leaves (none having been removed) is taken, and the leaves are picked off one by one, a mantra being recited before the plucking of each leaf. As each leaf is removed it is placed in a dish of water, into which, finally, the empty stem is put.

For the same purpose seven charmed limes may be cut, the cutting being accompanied by the recitation of mantras, over various parts of the patient's body, in the manner described for the curing of the "Effect of evil eye." One of the vertebræ of the large sea-fish *koppará* is worn, tied at the waist; or the flesh of the same fish is eaten.

See also "Use of garlic in magic," and "Protection of infants."

Pregnancy.—There are mantras for charming, preferably each day, the first food or drink taken in the morning during pregnancy, in order to protect the patient from the effects of the devils' actions; the charming is stopped when the child is born.

Parturition.—The water of a charmed coconut is drunk to relieve the pains of parturition. Unicorn's horn, ground into water and drunk, hastens delayed parturition. See also "Devil-Dancing," No. *x* in Set I. For protection after parturition see "Use of iron in magic."

Insanity, Possession, Epilepsy, Insensibility.—Insanity in its milder forms is cured by the application of mantras. For the cure of possession[1] see "Punishing Devils."

[1] In *Dem. Cey.*, the whole of Chap. VI is devoted to "Demon Possession," and several different methods of curing it are given.

According to a charmer, usually well-informed, who knew much concerning the magical treatment of diseases, epilepsy (as manifested by the usual symptoms of insensibility, foaming at the mouth, etc.) is due to natural causes, and is not produced by devils nor curable by charming. Compare "Amulets (Medicinal substances)."

To cure young people who, through the action of a devil, have become insensible, there is a charmed oil to be rubbed upon the forehead.

Charmers who become insensible during their operations are revived by the application of charmed water, or by the tying of charmed knots in their hair, as noted in various connections.

Insomnia.—There are mantras for the cure of insomnia. Compare "Thieves (Charms used by, etc.)."

Warts.—A number of small stones, equal in number to the warts, are placed in a package with a ½ cent copper coin (or three such coins). The warts are rubbed in succession with the package thus formed, which is afterwards taken, early in the morning, held in the right hand behind the back, without a word being spoken, to a cross-roads, where, the bearer of it having faced homewards, it is dropped, after which the bearer returns home immediately. Whoever picks up the package will, by his actions, assume the warts. (This is a good example of a *kema, i.e.*, a minor magical operation without the use of charming; another example is the application of iron-quenching water to cure "Effect of evil eye.")

Cramp, Pains in the limbs.—As a protection against and a cure for cramp in any part of the body one or more of the vertebræ of a shark (*mórá* = "any fish of the shark tribe") are worn, attached to a string round the waist. These bones, which are sometimes charmed to increase their efficacy, also prevent and cure all trouble in the vicinity of the waist. Bones of this kind whose authenticity is established are rather difficult to get and, considering the nature of the substance, rather expensive, one reason for this being that imitations, which are hard to detect, are often sold. The specimen shown on Plate XVI, Fig. 1, was thought to be one, and, although actually a mammal's bone, and incomplete, was worn, with good results, for a considerable time.

Metallic pieces called *wánsál* (?) (shown on Plate XV (A), Fig. 2), which are made of an alloy of lead with another metal, are worn by the Natives, of various races (Sinhalese, Tamils, Moormen, and others), in Ceylon to keep away and (if worn long enough) to cure swellings and pains in the joints, and pains in the arms and legs. A few (in the specimen shown, 18) are worn on the arm or at the waist. The virtue of these objects appears, from the information I received, to reside in their substance. They are sometimes to be found in the bazars, strung in quantity on long strings from which the vendor takes the number required by the purchaser.

To cure pains in the limbs the parts affected are washed with water charmed by an elaborate ceremony, or are rubbed with charmed oil. During the ceremony of charming one variety of such oil, the oil is stirred with a piece of iron.

To cure sprains rubbing with charmed oil is resorted to.

Stomach-ache.—Stomach-ache is cured by the application of mantras.

Head-ache.—Some dried ginger having been ground with woman's milk, and charmed before removal from the grinding stone, the mixture is rubbed upon the forehead. Instead of ginger, sandalwood may be used in the same manner.

Some coconut oil which has been charmed by the recital of a certain mantra over it seven times, it being stirred meanwhile with a piece of iron, is rubbed on the forehead.

Some *wadakahá* (*Acorus calamus*; sweet flag) is ground with *ghee.* The mixture is lighted, and then, having burned for a moment, is extinguished. The smoke arising, having been charmed by the recital of a certain mantra over it, is inhaled, the inhalation being facilitated by the use of a funnel, made of a conically-rolled jak-leaf with the end of the cone torn off, the point of which is inserted into the nostril. See also "Use of garlic in magic."

Ear-ache.—Some freshly drawn water in a new pot, or in the thoroughly clean palm of the hand, is charmed by the recital of a mantra, and a few drops are put into the afflicted ear. See also "Use of garlic in magic."

Tooth-ache.—Tooth-ache is caused by worms in the teeth.

A betel leaf, over which a certain mantra has been recited, is chewed with the aching tooth.

A little chunam (lime) is rubbed on the cheek, just outside of the aching tooth, and a certain mantra is recited.

A funnel is prepared by inserting a reed tube in a hole in a half shell of a coconut, and by means of this the smoke of charmed *dummala* powder thrown upon burning coals is drawn upon the aching tooth.

Difficulty in breathing, etc.—There is a yantra to be worn as a cure for this. A piece of unicorn's horn may be similarly employed.

There is a serious malady, curable by charming, in which the devils grip the patient's throat and thus prevent him from swallowing.

Nervousness.—This is cured by the tying on of a charmed thread.

Infectious diseases.—Against infectious diseases in general small amulet cases containing charmed oil or charmed pills are worn, usually at the waist or on the arm.

Against small-pox parts of tigers (or leopards) are worn. See "Amulets (Animal products)."

Fevers are cured by the use of mantras and yantras.

Dysentery (*atisára*) is cured by a ceremony in which a tree and a lamp are presented, on behalf of the patient, to the afflicting devil. See also "Amulets (Medicinal substances)."

PROTECTIVE MAGIC.

PROTECTION FROM PERILS.

From animals.—When passing through the jungle it is especially dangerous to come upon a deaf elephant in one's path, for, although ordinary elephants will usually go away when they hear people approaching, deaf elephants (who cannot hear them) do not. In order to cause a deaf elephant to depart the traveller should repeat a certain mantra, at the same time holding the index finger of his right hand within his ear.

There are various mantras to protect the traveller through the jungle, some general, some directed especially against certain animals, and intended to be recited when such animals, leopards, for example, are met. See also "Amulets (Animal products) (Medicinal substances)."

From snakebite.—There are certain yantras, engraved usually upon copper, which protect their bearers from the attacks of serpents. A picture of the King of the Cobras, a double-headed snake, tatued upon the arm, serves the same purpose. The jewel which is possessed by certain serpents [see "Amulets (Animal products)"] protects its bearer from snakebite. So also does peacock-oil, either carried or rubbed upon the body.

A certain charmed oil, dropped into a cut in the thigh, is a similar protection; this oil changes the colour of the skin, whatever its original tint, to yellow near the incision, if it takes effect.

There is a certain mantra which may be used in connection with any charm, or in the preparation of any amulet, against serpents.

A mantra which, repeated mentally seven times just before setting out on a journey, will protect the user from snakes, gives the name of a serpent who was "King of Serpents," and the names of each of his parents, and, after stating that he lived in "the Himalaya Mountains (some distant, but apparently indefinite region) and was the grandfather of 60 million serpents," says "should any serpent come near me to-day, let him press his head against the ground in reverence." After the recital of the mantra the person pretends to spit towards his feet.

If it be desired to cause a serpent or a centipede or the like to become inert and harmless, lying as if paralyzed, a handful of sand should be taken up and thrown upon the animal, a short mantra having been recited over the hand. Or, some saliva having been charmed in the mouth, by means of the same mantra, a pretence is made of spitting upon the animal. To cause the animal to be the more firmly bound, both forms of the charm may be used. Should it be desired to cause the animal to remain without moving about during some little time, the quantity of sand charmed should be greater, and it should be scattered about where the animal lies; until the effect of the charming departs from the sand, after about half an hour, the animal cannot move without touching some of the paralyzing sand about it.

In or upon water.—To keep from such dangers as drowning, attacks by fish,

crocodiles, or water-snakes while swimming, sea-sickness, the overturning or sinking of a boat, and the like, a person should, just before entering the water or the boat, splash some water with the hand in each of three directions (in order to protect himself on both his sides, and from dangers coming from directions between), saying, at the same time, "*Namo darpa darpa swáhá* (?)" (apparently a mere meaningless formula) for each direction. If the person embark upon a large vessel, so that he is unable to reach the water, he should replace the splashing of the water in this operation by the throwing of three pebbles, one in each direction.

The figure of a fish, formed of gold or silver and charmed, representing the great fish called "*Ánanda-kurmastekur* (?)" (apparently the combined names of a fabulous tortoise), whose powers are seven times as great as those of any other animal of the seas, will protect the wearer from all dangers in or upon the water.

Ornaments having a fish as the motive are not uncommon in Ceylon, but to most of these the Sinhalese seem usually to attach no protective significance.

A yantra bearing the form of a fish, and protective against the dangers of water, is noted under "Yantra."

Against lightning.—When the deities Aruchéna and Víma fought together, and Víma attacked his opponent with lightning, the former trampled the lightning beneath his feet. For this reason Aruchéna is appealed to by people for protection during thunderstorms. (For an application of this belief see "Yantra.") See also "Use of iron in magic."

In general.—A picture of Bhadrakáli (a very powerful benevolent devil), which has been charmed seven times, put up within a house, will cause that deity to extend her protection to those persons, living in the house, who offer respect to it by bowing the head before the picture whenever about to go out and by burning a little incense powder before it morning and evening. The picture is treated only in a respectful manner—prayers are not offered before it. See also various headings under "Amulets."

PROTECTION OF INFANTS.

For several days after birth an infant continues to smell of blood, wherefore it is particularly attractive to the devils and peculiarly liable to their attacks. It must, therefore, be protected with special care during this period.

After a newly-born infant has been washed there is stuck upon its forehead, just above the nose, a small pellet which is allowed to remain in place during three days (as to which there is generally no difficulty, the infant usually lying quiet at this time). The pellet is formed of the ashes of some medicine mixed with a little gold rubbed from an ornament, and protects the infant from the attacks of devils, the effects of evil eyes, and the like.

Immediately after an infant has been washed after birth there is tied, upon each of its wrists, a thread upon which are strung several sections of *wodakahá* (sweet flag; apparently sections of the root). These strings are worn until the child is about three months old, and protect it from the attacks of devils, from

infantile troubles, and from stoppages of its mother's milk caused by the effect of envy (this last is as stated by an informant; in the protection of the child some effect seems to be extended to the mother, but in what way was not made clear). The number of pieces used appears to be immaterial; in a pair of wristlets taken from an infant at Colombo (see Plate XVI, Fig. 2), it happens that there are five pieces on each thread, but it was said at the time when the specimens were obtained that any other number might have been used with equal propriety.

The placenta, having been wrapped in a piece of matting, and having had *yadina* (a kind of verse) recited over it, is buried, usually close beside the parent's house. Should the *yadina* be omitted, the child may become sickly, or ill, or stunted, as a result of injury to the placenta. It was said that the placenta is sometimes used in charming ceremonies (but how, or for what purpose my informant did not know), and that, to keep it from being disinterred, and the child, despite the *yadina*, from suffering, burial near the house is practised.

Until a child has been weaned it is unclean, and should not, therefore, wear golden ornaments before weaning takes place. See also "Children's amulets," "Use of garlic in magic," "Use of iron in magic," "Curative practices (Children's sicknesses)," and "Votive offerings."

PROTECTION OF HOUSES.

Before a house is built four pebbles and four silver coins should be charmed, and one of each should be buried at each corner of the site of the house. Instead of ordinary pebbles uncut precious stones, of poor quality, may be used with great advantage, since such stones attract the "sight" of gods and benevolent devils; such stones may be of different kinds, or all of the same kind. Near the site of the house a post should be set up, at the middle of which two coconuts are hung, and at the base is placed a new pot containing a coconut flower and some water taken from a running stream.

When the house is completed a charmer comes, bringing, amongst his other paraphernalia, a mask of Garayaka (the devil of new houses). During the night the charmer dances; when morning comes he crosses over each doorstep of the house, and throws some *dummala* powder in each of four directions in each room. At about 10 a.m. he dances with a new pot full of water, turning the pot about so that some of the water spills from it in each of the rooms, until he reaches again the place at which he entered, where he dashes the pot against the steps and breaks it. The future residents of the house may then come in to occupy it. The people of the house may, besides having a ceremony performed by a charmer, have preaching by a number of priests, during several nights; on the last day a feast is given to the priests, which marks the conclusion of the ceremonies.

To protect a house from white ants a new pot is filled with water from a "new well," and is charmed. Then, whilst a mantra is recited, some of the charmed water is thrown over the wood of the house, and the pot, with some of the

charmed water still in it, is hung up in the house. See also "Yantra," "Use of iron in magic," and "Votive offerings." For protection against thieves see "Thieves (Charms used by, etc.)."

PROTECTION OF CROPS.[1]

In order to protect the crops in a field charmed water is thrown about it, on three days in succession, by means of an areca-flower.

A person covers his head and body with a white cloth, and, walking in the early morning along the paths around and through the field to be protected, without speaking a word, scatters, where they will not be trampled upon by people, the ashes of five kinds of *pas pęngiri* woods. While the ashes remain, and are not trampled upon, the crops will not be attacked by noxious animals or insects.

A charmed image of a man made of sticks, straw, etc., is set up in the field.

A living land-tortoise is broken into pieces, which are then scattered about the field; the crops in the field are thus protected by land-tortoises from damage, which, in the case of some crops, may otherwise be serious.

To protect a coconut-plantation from attacks by rats, one of the trees is dedicated to Húniyan Dewatawa (a very great devil whose proximity at night may be known by the light which he gives off). Two nuts are taken from the tree to be dedicated, after which no more are taken during the period for which the tree is dedicated. From these two nuts oil is made, which is burned, during the dedicatory ceremony, each evening of seven days, upon a small altar built of young coconut-leaves against the tree to be dedicated, upon which there are also placed, as offerings, some flowers, including areca-flowers, some small coins, some bits of camphor, etc. During the ceremony *yadina* (a kind of verses) are recited.

PROTECTION OF CATTLE.

Cattle, which are very largely used as draught animals, and are consequently exposed to many evil influences, are almost always protected by magical means. Their hides are branded with various protective designs (as shown on Plate XIV, Fig. 9, and noted under "'5' in . . . magic") for the prevention or cure of the ailments to which cattle are subject (those illustrated were said to have been executed as a cure for boils and thinness caused by the effect of an evil eye), and they wear various amulets, of which hair-ropes, chank-shells, and pieces of iron are the most usual.

The hair-ropes, occasionally brown, but generally black, are commonly said to be (and apparently actually are) of human hair (sometimes, it was said, with elephant's hair), and, although their virtues are intrinsic (for what particular reason I could not ascertain), are often charmed in order to add to their efficacy. They

[1] Much on the protection of rice-crops is to be found in "Customs and Superstitions Connected with the Cultivation of Rice in the Southern Province of Ceylon," by C. J. R. Le Mesurier, in *Jour. R. As. Soc.*, 1885, pp. 366 *et seq.*

are worn wound one or more times round the bullock's neck, or stretched across the top of his head, held by the horns, or round the leg just above the hoof.[1] Upon the hair-rope a chank-shell [see "Amulets (Animal products)"] is often threaded (Plate XIV, Fig. 11), upon a steel chain (such as is shown on Plate XIV, Fig. 10), in order to secure greater protection; these chank-shells are, it was said, unlike the hair-ropes, not charmed. A piece of hair-rope is shown in Fig. 19. Plate XVI.

A third common amulet is a piece of iron, generally in the form of a flat disc pierced with a circular hole, or of a square with a square hole (Plate XVI, Fig. 3, and Plate XIV, Fig. 10). Often several of these are worn together on a chain so that a jingling noise is produced when the animal walks. Curiously, the chains worn round the neck or round the horns are, I have invariably been told, for ornament alone, and, since they are of "steel (not iron)," have no protective virtues.

Sometimes pieces of ivory, or of bone representing ivory, are worn as a protection against the evil eye: see "Amulets (Animal products)" also Plate XVI, Fig. 4.

There are charmed medicines, usually worn in a small leather bag at the neck (Plate XVI, Fig. 5, shows a bag for the purpose, containing a powder), to ward off various diseases, and charmed oils, contained in metal cases, sometimes suspended by a charmed saffron-stained cord, with the same intention.

There are mantras, which must be recited over the cattle each year, to protect the members of a herd against attacks of epidemic diseases from which cattle not thus protected suffer.

For the recovery of a lost bullock there is a special ceremony addressed to Gopaḷuyaka (the devil who attacks cattle), of the same nature as that described under "Protection of crops," in which the produce of a tree is vowed to him during a certain period. See also "Employment of votive offerings."

AMULETS.

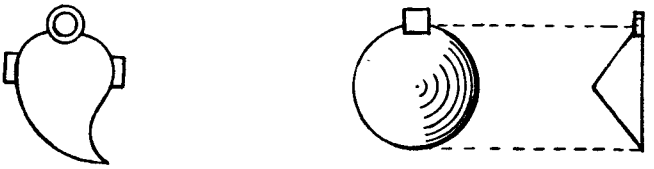
Miscellaneous Notes.—Some objects which, in other countries, are frequently used as protective amulets, but concerning the employment of which in this manner in Ceylon no information could be obtained, include bells, horns (used as a whole, as materials, or, in representations, as symbols), coins, and naturally-perforated stones These last do not, apparently occur at all in the vicinity of Colombo, for various persons there who were questioned concerning them had never heard of such things.

When medicines, particularly charmed medicines, are being prepared, the devils who cause disease sometimes attempt to upset the pot. or do other damage. In order to protect the medicines from them a bit of iron, such as a nail, should be tied upon the pot, and an × (not a Christian Cross [+], my informant stated) marked with chunam (lime) upon the pot's side.

[1] These ropes are much used as amulets in Southern India, and also for the bullocks driven by natives of Southern India in Ceylon, the Straits Settlements, and elsewhere.

Various amulets and amuletic substances have been noted under "Protection" (various headings), "Use of iron in magic," "Astrology," and "Charms to Secure Favour."

Children's amulets.—Black glass bangles (Plate XVI, Fig. 6) are commonly worn, several together, by young children. They are called *kaḍa-walalla* (equivalent to "breaking-bangles"), and are placed upon the child when it is weaned, being worn until the child is seven years old. These bangles, which are imported from India, are very much used by the Sinhalese, and considerably, apparently, by the other races in Ceylon. It is believed that, should one of the bangles be *accidentally* broken while worn, the child will be cleared of any effects of an envious eye or the like to which it has been exposed, and that it will be protected from evils of the kind in the future. If, however, some effect of the sort has come upon the child before the bangles are put on, this, most probably, will not be cleared away by the accidental breaking of one of them thereafter. It was said that glass bangles of other colours, which are used to a much smaller extent than the black ones, are considered similarly protective; and also that like virtues are ascribed to bangles of chank-shell. (It should be noted that the bangles are not supposed to break by exposure to an evil influence which would otherwise affect the wearer, as is often the case with amulets, but act protectively in the manner described above. A belief similar in nature is mentioned under "Divination (by omens)." It is probable that the black bangles are preferred because black is, in some aspects, a protective colour, and, similarly, those of chank-shell because that material is in itself protective.)



CHILDREN'S AMULETS.

Sinhalese children wear, as a protection, a piece of metal shaped as in the left-hand figure above (and said to resemble, or to represent a heart), which has been charmed. This ornament, which is called *hṛida-wastuwa* ("heart treasure") is usually made of silver, although any metal (excepting brass, which is a "low caste," *i.e.*, base, metal) may be used, an alloy containing the five metals being especially suitable.

A protection against sicknesses of the chest, colds, etc., called by the same name and made of the same metals as the amulets just described, is a conical ornament, of the form shown at the right, which has been charmed.

Infants wear sometimes, it was said, small shells, at the neck, for the cure of a disease in which living beetles, which fly away, are given off in the excrement, and which affects the skin strongly. It is immaterial, it was said, what species of small shells are thus used; amongst some shown as suitable were a number of cowries.

For the cure of a child's cough a string of *magul-karanda* (*Pongamia glabra, Vent.* Leguminosae) seeds is worn at the neck. The seeds, which are believed to act by means of their intrinsic virtues, and are not charmed, are worn by the children of all races (including Sinhalese, Tamils, Moormen and Burghers) in Ceylon. One way of applying the cure is to hang seven of the seeds at the patient's neck, and to remove one each of the following days in succession until, with the removal of the last seed, the cough disappears. It seems, however, that this method is not always applied, and that the seeds are sometimes worn like ordinary amulets. Attached to the necklace of these seeds shown on Plate XVI, Fig. 7 (which was worn by a Tamil child), there is a small copper disc engraved with a device said to represent Siva's Bull and to secure Siva's favour and protection.

Bangles or anklets of iron, usually thin and light, or bracelets of iron chain, are often worn by children as protections against devils. As is the case with the amulets for cattle (see "Protection of cattle") these objects should be of *iron*, not of *steel*. (Plate XV (A), Fig. 5.)

Tamil girl-children in Ceylon often wear a protective "fig leaf" attached to a string round the waist, and young Tamil boys, less often, an elongated conical object corresponding to the "fig leaf." These objects are usually made of a soft white alloy or of silver, and are frequently accompanied by a number of other objects, some resembling bells, of conventional and archaic form (see Plate XV (A), Fig. 6, a silver "fig leaf"; Fig. 7, a silver "fig leaf" ornamented with a sun and a moon, to secure the protective influence of the luminaries; Fig. 8, a girl's waist-string of pewter objects; Fig. 9, a boy's waist-string of pewter objects). The girl's ornament is often, with young children, the only clothing worn; its amuletic intention (although frequently denied by the parents) is shown by its being worn sometimes beneath the clothing, even when the child is fully dressed. A form of it commonly sold in the bazars consists of a piece of coloured glass having the outline of a leaf, bound in and crossed longitudinally by a pewter frame. Although this ornament is commonly explained as representing a leaf of "The Sacred Bo-tree" (curiously, since the Tamils are not Buddhists), that explanation appears to be based on a merely fortuitous resemblance, and to be intended as a means of evading the giving of the real meaning, because, according to several informants, the amulet is really a representation of the *vulva*. The boys' ornament, which evidently is a conventionalized phallic form, is sometimes similarly explained as a toy for the child to play with, in order that he may not injure himself. The principles actually underlying the employment of these ornaments (unknown, no doubt, to many who make use of them), as explained to me, are that the devils are wont to "keep sight" on the generative organs, if these be exposed to view, thereby causing, possibly, serious injury to the child, and that therefore metal images of the organs, which cannot be thus injured, are hung near the organs themselves, to take the devils' "sight."

The children of Mohammedans sometimes wear these ornaments; those of Sinhalese Buddhists do not commonly, if at all.

See, for various notes, "Protection of infants," "*Pañcháyuda*," "Colours in . . . magic," and "Use of garlic in magic."

Charmed objects.—Charmed objects should not be worn when a funeral is attended, nor when sleeping near a woman in her menses, nor when having intercourse with any woman, lest they lose their efficacy. When the virtues of charmed objects have thus been lost they cannot, in general, be renewed, and, if the protections are to be replaced new objects must be taken for charming.

In some amulets the virtues are due entirely to the ceremonies to which the amulets have been subjected; in others they are inherent in the materials of which the amulets are composed, or in the amulets' forms, but may be intensified by charming ceremonies.

Pañcháyuda.—The *pañcháyuda*, "5 instruments" (Plate XV (A), Figs. 10 to 14 inclusive), is an amulet commonly worn by children, and occasionally, it was said, by adults. It is a metal piece, generally circular or elliptical, engraved with, or bearing in relief, five symbols, and it has been charmed. Sometimes, I have been told, the symbols which usually represent the five instruments are replaced by five simple dots. The amulet is generally of gold, more or less pure, or of silver, plain or gilded, as it is thought by some Sinhalese that the greater the intrinsic value the greater the efficacy is likely to be, although by others an alloy of the five metals (see "Metallic amulets") is considered to be the most suitable for the purpose. Sometimes iron is used in the construction (as in the one shown on Plate XV (A), Fig. 10), but only in a minor capacity (the explanation which was given of this was that iron is too common a metal and consequently displeasing to the deities invoked, as well as being too ugly for wear as an ornament; I am inclined to think, however, that the idea of iron as a protective metal probably conflicts with some of the ideas underlying the *pañcháyuda*). Occasionally the metal is enriched with precious stones; sometimes it is set with a single stone (as in Fig. 12, Plate XV (A), where, as also in a gold *pañcháyuda* noted, the gem is a pearl). The *pañcháyuda* is placed upon children, it was said, when they are weaned, a propitious day being chosen by an astrologer for the purpose; it was also said by the same informant, that the effect of the charming to which the *pañcháyuda* is subjected lasts seven years, at the expiration of which period it should, if the amulet is to continue in use, be repeated. The charming of the amulet is reputed to be a long and elaborate process, and months may elapse before a *pañcháyuda* which has been ordered is ready for wear. In consequence of this it is almost impossible to buy a *pañcháyuda* from the parents of a child who is wearing it, and worn specimens can usually only be obtained either from the parents or in the bazars after the children who have used them have grown up or died. The wearing of a *pañcháyuda* is sometimes concealed, as often the stricter Buddhist priests set themselves against it.

The information received concerning the five objects shown upon the *pañcháyuda* was of conflicting kinds. The symbols, which vary somewhat, seem

to represent, commonly, five of the following: a sword or knife, the *Para-walalla* ("Best-ring," usually shown as a ring with a plain or indented edge, a magical object whose properties are such that if it be thrown into the sea the sea will dry up, or if against the sky there will be no rain during seven years, or if into the earth precious stones and treasures hidden there will be discovered, etc.[1]), a chank-shell or possibly a musical instrument made of a chank-shell, a short spear, a trident, an elephant goad, a bow and arrow, and an axe. The five objects were said, by one informant, to be the emblems of five of the nine planetary deities, whose protection is thus sought: they are to be seen in pictures of those deities, and although they are emblems of other gods or demi-gods as well, I am inclined to his opinion. According to another informant, a man generally well versed in such matters, the symbols represent the weapons of various deities, ranging from Vishnu to the king of the devils, and all are objects feared by devils; by this informant it was said that five symbols were chosen in order to protect the five, figurative, not physical, "gates" of the body from the entrance of all evils. According to the labels upon the *pañcháyudas* exhibited at the Colombo Museum the symbols are those of "the five weapons of Vishnu." Most people questioned on the subject, even though they employed the *pañcháyuda* for their own children, seemed to know little concerning it, except that it should be powerfully charmed.

The *pañcháyuda* which is shown in Fig. 14, Plate XV (A), is of silver, and is sold new, at several shops in the bazar at Colombo; it is made also in circular form, and also of gilded silver. I am inclined to think that it is sold principally as an amuletic ornament to be used, without being charmed, by others than Sinhalese (and possibly by Sinhalese as well), and that it marks a step in the degradation of the *pañcháyuda* to a decorative ornament of which the amuletic origin has been forgotten.

Metallic amulets.—An amulet composed of "five metals" is shown on Plate XV (A), Fig. 15. Although it resembles in various ways an "electric medal" of European manufacture, it has been, according to several Sinhalese to whom it was shown, made in Ceylon, and is of a usual, though not very common type (it is, I think, the only specimen of the kind I have seen). The enclosing band is of a light yellow alloy, said, by one or two informants, to contain five metals within itself; the circular pieces (apparently sections of rods) of copper, zinc, or, possibly, some leaden alloy, and a darker yellow alloy; and the small suspending ring of silver. Even if not, as claimed, of Sinhalese manufacture, the specimen is interesting as showing an adaptation, or, possibly, a re-arrangement and modification, of a European protection to fit Sinhalese beliefs.

Another amulet composed of "five metals" (said to be gold, silver, copper, "bell metal," probably a grey bronze, and, apparently, a kind of yellow bronze), in this case mixed together, formed as a trident, a "three-pointed war instrument," is shown on Plate XV (A), Fig. 16. This object, which has been powerfully charmed,

[1] Upham, p. 118, calls the *Para-walalla* the warlike weapon of a deity.

is to be worn in the knot of hair at the back of the head or in the hat, for the purpose of causing its bearer to be invariably victorious in war, gambling, games or sports, and the like. See also "Use of iron in magic," and "Curative practices (cramp, etc.)."

Animal products.—The elephant, as in other Asiatic countries, on account of its nature as well as because of the Buddhist conceptions associated with it, supplies several sorts of amulets. Its ivory is considered to be protective against the effect of the jealous or envious eye, bad dreams, and the like, a virtue extended sometimes to bone (whether from some other animal or from an elephant, I did not learn), which, possibly through ignorance, is taken as ivory. A finger-ring of bone (Plate XVI, Fig. 8) and a perforated disc (Plate XVI, Fig. 4) of the same material suspended from a bullock's neck, both considered to be ivory and therefore protective, illustrate these beliefs. There is, in the Colombo Museum, a section of an elephant's jaw, mounted in silver, to be carried as an amulet; the same material, I have been told, ground in water which is used to rub upon the affected parts, will cure a certain disease, lasting about a week, one of the symptoms of which is a swelling about the jaw. The tail-hairs of elephants are mounted in gold, sometimes beautifully worked, as finger-rings, and thus worn are said to protect their bearers from the "sight" of devils, from bad dreams, from sicknesses in which the patient starts with fright (nervous diseases ?), etc., and from the bites of dogs, cats, rats, foxes, wolves, and other animals; in order to secure the maximum effect the ring should be charmed. I have not seen in Ceylon the rings, formed entirely of elephant's hairs plaited together, which are used on the mainland. A bracelet (Plate XVI, Fig. 9) of plaited black hair, mounted with silver and bearing a small case containing charmed oil, was said by its wearer (a Tamil man) to be of elephant's hair, and consequently protective, although it is really of the hair of some smaller animal (horse ?); here the black colour, whatever be the nature of the hair, is a protective factor. The hair-ropes worn by bullocks (see "Protection of cattle") were said to contain, sometimes, elephants' hair; this statement, which is a doubtful one, I was never able to verify.

The tiger also, as on the mainland, furnishes a number of protective substances. However, no distinction seems to be made between the tiger and the leopard where protective virtues are concerned, and, since I have repeatedly had pointed out to me, by various informants, leopard-claws, pieces of or even entire leopard-skins, etc., as those of tigers, I believe that when tigers are mentioned by the Sinhalese leopards are generally meant. I shall, therefore, speak of the products of both leopards and tigers herein as if they were those of tigers only.

There are two sets of beliefs in which the tiger appears as a protector—in one his virtues are due to his physical powers, in the other they are due to his assumption as an apparitional form by a devil. According to the former a tiger's tooth, or his claw, or one of his whiskers, or a piece of his skin, especially if charmed, will protect the wearer from attacks by wild beasts (wild buffaloes, especially) of any

kind, or by a mad dog. The dog, being a favourite prey of the tiger,[1] has a great dread of anything connected with his enemy. Should one wish to test the genuineness of a tooth for sale, as a tiger's, in the bazar (pigs' teeth are sometimes sold in substitution for tigers', wherefore, I was told, it is safer to buy a tiger's tooth from a Mohammedan merchant than from a Sinhalese or Tamil), it is only necessary to conceal it amongst some food and to offer the food to a dog; should the tooth be genuine the animal will not dare to touch the food. By virtue of this same property parts of the tiger protect their wearers from evil dreams, for the devil who causes such dreams comes at night riding upon a black dog which, fearing the tiger whose presence he scents, will not approach the sleeper. Some charmed tiger's-fat which was secured for me was said to have, if rubbed upon the body, or carried, in addition to the virtues enumerated above, the power of keeping away devils (especially the one causing small-pox), and, rubbed upon the forehead and the hand, that of giving victory in a fight. The Sinhalese do not appear to believe in the teeth, claws, etc., as protections against evil eyes and like influences.

According to the second set of beliefs the devil who causes small-pox sometimes appears, to persons in the extremities of that disease, as a tiger. In consequence of this various parts of real tigers are a common protection against small-pox, a little charmed tiger's oil carried in a case being a particular favourite. (The spotted appearance of the leopard suggests that it is that animal, rather than the striped tiger, which is connected in popular belief with small-pox.) On Plate XVI are shown a number of products of the tiger; Fig. 10, a tooth mounted as a pendant, with a silver band near the point to prevent splitting; Fig. 11, a tooth (said to be a tiger's, but probably only an imitation) mounted as a brooch in the form of a fish (see "Protection . . . . upon water"), as quite commonly sold in jewellers' shops of the better class; Fig. 12, an armlet of tiger's skin mounted with silver (another obtained, made of bits of skin sewn into an endless band, is not shown); Fig. 13, a silver case containing charmed tiger's-oil and worn at the wrist. The claws, mounted as pendants, are very commonly worn, although not always as protections.

Charmed lion's-oil is worn in an amulet case, or dropped into a cut in the flesh, by warriors, for protection (and evidently, though it was not so stated, to give courage).

To chank-shell, probably originally chosen because of its adaptability to the making of ornaments, various protective virtues are assigned by the Sinhalese, largely associated with its connection with religion. By people, finger-rings (Plate XVI, Figs. 14, 15, 16) of chank-shell are worn as protections from evil and misfortune, and, very commonly, as curative of pimples, particularly those upon the face. When used for the latter the patient occasionally passes his hand over his face, to increase the effect; powdered chank-shell, also, rubbed upon pimples, is

[1] The Malays, amongst other races, seem to hold the same idea; one of the charms for victory, given in *Malay Magic*, p. 522, contains the line

"Ha, I am a Tiger and thou art a Dog."

supposed to have a very beneficial effect. Some of the finger-rings are plain; others have a carved decoration, which, it was said, is merely decorative, not symbolic. Bangles of chank-shell are worn by children (see "Children's amulets"). Rings of white glass (Plate XVI, Fig. 17) are sometimes worn as a protection, because of their resemblance to chank-shell, and, I was told by one informant, coloured glass rings may be worn with the idea that they are coloured chank-shell. Entire chank-shells (Plate XVI, Fig. 18) are very commonly worn by draught-cattle, hung below or at the side of the neck, or upon the head between the horns (Plate XIV, Figs. 9 and 11), being held usually by the amuletic hair-ropes (see "Protection of cattle") or the steel chains. The shells thus used are sometimes plain, sometimes incised with a design, and are sold, in the shops dealing in teamsters' supplies, with a hole for the suspending cord to pass through knocked or bored in them. Instead of an entire shell a number of rings of chank-shell (Plate XVI, Fig. 19), strung generally upon a hair-rope, are sometimes used. The chank-shell is said to protect the animal from the evil attentions of Gopaḷuyaka, the devil who causes sickness in cattle.

Peacock feathers, formed into two bunches which are set together in the shape of a V, are placed upon the wall of a house, directly opposite to the entrance doorway, as a protection against many diseases and as a means of securing good-luck. The oil of peacocks, charmed, is good as a general protection, and serves particularly against snakebite.

A piece of unicorn's horn, mounted for wear, is sometimes carried as a cure for "heavy breathing" (asthma ?) and as a protection. An amulet consisting of a piece of some substance, apparently horn, mounted in silver (Plate XVI, Fig. 20) was not recognized by Sinhalese to whom it was shown, but they suggested that it was an imported medicinal amulet.

A deer's musk-sac, in which the musk has been replaced by a mixture of medicines (including a little musk), charmed, forms an exceptionally powerful amulet. It is a valuable protection against all kinds of misfortunes and perils; it brings luck in gaming and in war; it brings a man who is delirious or insensible, etc., to his senses, if placed in his hand. The specimen shown on Plate XVI, Fig. 21, is an amulet of this kind; there is, however, a possibility here that, instead of a genuine musk-sac (which is comparatively expensive) having been used, an imitation has been substituted.

See "Children's amulets" for small shells worn by infants; "Curative Practices (Lack of milk) (Cramp)" for bones of fishes; and "Charms to Secure Favour" for charmed egg-shells.

The following animal products, used as amulets, must be taken as being more or less mythical in origin.

Some serpents, of a very poisonous kind, contain luminous stones which they vomit up at night to give them light. Since it is impossible for them to live without these jewels, their possessors never go far away from them. The serpents which have these stones are not specially marked, but are recognizable only through

being seen with their stones. A stone is obtained, by anyone fortunate enough to discover its possessor, in the following way:—During the day the hunter erects, at a spot to which the serpent is known to come at night, a clean, polished, and thoroughly oiled palm trunk, with a platform or a crosspiece at the top. When evening comes he mounts this, taking with him a large package of cow-dung, and awaits the arrival of the serpent. When the serpent has set down his jewel, and gone a little way from it, the hunter drops the dung so that the jewel is covered by it. The serpent returns at once to seek its treasure, and, not finding it, attempts to climb the oiled pole in order to reach its enemy, until it dies at last of rage and the effect of the loss of the jewel. The stone thus obtained confers, after having been charmed, enormous and extraordinary powers upon its possessor; it is also an exceptionally valuable amulet against serpents.

A luminous stone is also borne by certain lizards, which may be recognized by their possession of two tails. It is impossible to obtain this stone by killing the lizard, for if it be within the animal, it melts away the instant that death occurs. In order to obtain the jewel the lizard possessing it is placed in a covered pot having a small hole in the bottom, beneath which is a second pot. The animal, finding itself in darkness, brings forth its stone, which at once rolls down the inside of the pot and through the hole; soon after this happens the lizard dies. The stone, like that of the snakes, confers, after having been charmed, enormous and extraordinary powers upon its possessor.[1]

The leader or chief of each band of jackals (the animal described to me, and named in English, was a fox, but the Sinhalese names given for it, *nariya* and *kenihila*, mean either jackal or fox; I am inclined to the former animal, partly because of the colour of the horn, partly because of the S. Indian belief noted below) bears upon his forehead a small horn (about ½ inch long, covered with greyish white skin, and with a fringe of hair round the middle). This horn is sometimes lost by the animal, which, rubbing its head in a heap of paddy left lying about, breaks the horn off. The horn reveals its presence by preventing the boiling of the water into which the paddy is put during the process of cleaning, and is then searched for and discovered. The authenticity of a horn of this kind may be proved by placing it amongst some rice-grains which are offered to fowls, for, if the horn be genuine, the fowls, fearing an enemy, will not come near the food. A horn of this kind, after being charmed, is worn in a case upon the arm, and serves as a powerful protection against all evils, and as a means of securing good-fortune of every kind, in gambling, in racing, in the seeking of favours, etc.[2]

Vegetable Products.—It is believed that the king of the devils, Wesamuṇu,

[1] In Clough's *Dict.*, p. 238, a stone of somewhat similar nature is described, under *Daḷamutu*, as a fabulous pearl said to grow in the snout of the hog.

[2] Much information concerning the manufacture, sale, and purpose of jackals' horns, in Southern India, is to be found in Thurston's *Eth. N. in S. India*, pp. 266, 270. See also Tennent's *Ceylon*, 4th ed., vol. i, p. 145.

sometimes uses a rod of rattan for punishing his refractory subjects, and that, in consequence, devils have a great dread of that material. A proof of their dread is that rattan is especially efficacious in curing madness (possession) by whipping, the mere sight of it sometimes quieting the patient. People sometimes carry, while out, a small cane (but not a mere fragment) of rattan, to protect themselves from devils.

See also " Use of garlic in magic " ; and " Children's amulets."

Medicinal Substances.—There is a very powerful charmed oil called *Chandrakánti* (" Moonbeam "), which, if carried (on cotton wool, in an amulet case) or rubbed on the top of the head after the bath, protects its bearer from contracting contagious diseases, even though he go amongst people suffering from such diseases, and from wounds. If a little be put into the nose and ears of a person who is insensible, or in an epileptic fit, and another person blow upon him, the patient will at once recover. The oil is made by mixing together five kinds of oil, cow's milk, the juices of certain leaves, barks, roots, and the like, and is then subjected to a religious charming by being kept (amongst the various other things which are to take up some of the effects of the blessings) in the " shed " during the Buddhist preaching ceremonies, performed by a large number of priests officiating together, for the relief of a village suffering from, or threatened by, disease or misfortune. When these ceremonies have been concluded the oil is taken to an empty room (preferably in a vacant house) where there are no women about, and is charmed by three men who, taking turns at the work, recite mantras continuously during a period of seven days and nights, so that the sound of the charming does not stop, even for an instant. The oil, whose treatment is then complete, should be kept as much as possible from impurity (see " Impurity "). The oil, ready for use, may be obtained from native drug vendors at Colombo.

There are charmed pills called *Sanni-siṇha-guliye* (devils' lion [or pre-eminent] pills ; that is, it was said, " pills which, like a lion, frighten the devils "), formed of a mixture of various medicinal substances, one of which, worn in an amulet case, or tied in a piece of cloth, upon the right arm, will protect the wearer from all illnesses, against the attacks of all kinds of devils, from any of the effects of an evil eye or envy, and from wounds. For the charming of these pills they are placed in a vessel, round which a thread is passed three times, and exposed to the effect of Buddhist sutras, continuously read by two or more men, without allowing the sound to stop for an instant, during seven days and nights. They are then completed by a charming ceremony, conducted in an empty room, similar to that used for the oil described above. Like the oil, they should be preserved from the effect of impurity. They may be obtained from native drug-vendors at Colombo.

A charmed mixture, called *Añjanema*(*?*), of a considerable number of medicinal substances will, if carried in an amulet case worn on the arm or at the neck, protect its bearer from evils and injuries of every kind, from devils, from all diseases, from snakebite, from dogbite, from attacks of bulls, etc. It is supplied

wrapped up in a betel-leaf (an honourable material), in which, in order to preserve its efficacy, it should be kept.

There is a charmed mixture of several medicinal substances which is worn to secure the protection of the four guardian gods. During the seven days required for its grinding its maker should eat only vegetables, and he should grind the mixture only at noon each day. During the grinding he, together with the grinding stones (which should be new), should be covered with a white cloth, and his mouth should be screened by a white cloth in order that his breath may not defile the mixture (and, probably, partly for his own protection against the cobra-poison which is one of the ingredients). When the grinding is finished the mixture is charmed for seven days, before being removed from the stones.

A certain charmed oil which is used to enforce chastity, especially by jealous husbands about to leave for a journey, and sometimes to cause annoyance to people whom the user of it dislikes, has the effect of preventing its bearer from separating from his (or her) partner after intercourse. The oil is generally rubbed upon its bearer's person or clothing, and has then an effect lasting about one week; should it, however, be rubbed upon the subject's mattress, a longer efficacy, up to about two years, may be obtained. A mantra is recited over the finger with which the rubbing is to be done, and another during the process of rubbing.

Finger rings.—A metal finger ring ornamented with a small image of the *Para-walalla* (a magical ring; see "Amulets, *Pañchâyuda*") is a valuable protection.

A metal finger ring ornamented with a certain heart-shaped piece (similar in form to that shown under "Children's amulets") is worn as a protection.

A finger ring, preferably of gold, set with a ruby surrounded by pearls (at least three pearls ought to be used, although two are sometimes considered enough), if properly charmed will protect the wearer's entire family.

A finger-ring of black glass is, because of its colour, considered protective (Plate XVI, Fig. 31).

See "Astrology" for planetary (including *Nawaratna*) rings; and "Amulets (Animal products)" for finger rings of bone, or set with or formed of elephant's hair or chank shell, and for coloured glass rings.

Inserted amulets.—A charmed pellet of gold, inserted beneath the skin, will protect the bearer from dangers of every description. (In one man I knew, the gold, about the size of a small birdshot, had been put beneath the skin of the neck, toward the right side.) The pellet having been made, it is charmed, upon a "decorated chair," on three Sundays (note the conjunction with *gold*) in succession, after which it is placed in charmed oil. The skin is cut with a golden instrument (made by thinning and sharpening a piece of gold; an *iron* instrument must by no chance be used) which has been charmed, and, the wound having been cleansed with some charmed woman's milk, the pellet is inserted. When this has been done the wound is salved with charmed *ghee*, and is finally bandaged with a white cloth wet with water coloured with saffron. After seven days the cloth is removed, when the wound will be found to have healed completely.

See "Yantras" for charms to be tatued upon the body; and "Protection (Snakebite)" and "Amulets (Animal products)" for oils to be injected into the flesh.

Yantras.—Yantras are written charms, often astrological in character, which are used for protection, for curing, or for causing injury. Those for protection are carried upon the person, or kept, sometimes framed and hung like decorative pictures, in the house; those for curing are carried upon the person, usually tied to or strung upon a cord round the waist; those for causing injury are the material objects by means of which the evil influences called forth are brought, through actual contact, through "stepping over," or otherwise, into touch with the victim.

Yantras are usually engraved upon sheets of metal or upon ola-leaves, although they are occasionally written upon paper. Paper is, however, considered to be very unsuitable for the purpose, since if it becomes torn or otherwise injured, as may easily happen, the efficacy of the yantra may be changed or cancelled by the complete destruction or the changing of the form of some of its component characters (as R may be changed to P, or L to I, for example, in English). Preferably metal is used, gold, silver, copper, or some hard or soft white alloy, the more expensive the better (because the deities or benevolent devils whose assistance is desired are pleased with good things). Copper, often gilded, is probably the most usual metallic base. Poor people, who are unable to afford the expense of engraved metal, use ola-leaves, especially if the yantras (like most of those for curing) are for merely temporary employment, after which their efficacy ceases. It is usually such yantras as these, the need for whose application has ceased to exist, and not protective yantras, which are obtainable as specimens. Protective yantras are sometimes tatued upon the body.

The contents of yantras vary greatly; some contain merely inscriptions, to which, in others, magical symbols, such as the pentacle or the double triangle, are added, while others have elaborate, and sometimes beautifully executed pictorial designs. Many of the yantras are based upon some "magic square." Drawings of yantras for various purposes, written upon ola-leaves, each with an inscription indicating its intention, are kept in books by the charmers, and copies of them are made as required. Usually, if not always, a yantra is charmed before it is used, and in many cases the charms (mantras) proper to them accompany the drawings which are to be copied. There may sometimes be found upon yantras, when they have not been too long in use, traces of the charming to which they have been subjected, as the saffron staining of the binding cord, or a little incense powder. Being charmed objects yantras should, as much as possible, be protected from contact with (ceremonial) uncleanness; they will not be effective, for example, if placed upon a woman during her menses or the seven days following them.

Yantras are usually for the purpose of correcting unpropitious or harmful planetary influences causing misfortune or sickness. When such is the case the horoscope (see "Astrology, Horoscopes") of the person afflicted is consulted, and by the aid of the data thence obtained selection of the proper yantra is made.

Yantras usually protect from the malign influences of one, or of several of the planets in conjunction, but there are some which will protect their bearers from malign influences emanating from any of the planets. What was said to be an astrologer's copy (on an ola-leaf) of such a yantra, a variety difficult to devise and, it was said, rather rare, came into my possession in Ceylon; I obtained there also a yantra of similar character, inscribed on copper, said to secure for its bearer the protection of all the nine planets.

When they are to be carried, the sheets upon which the yantras are inscribed are usually rolled up and wrapped round with cord, after which they are often placed in amulet cases of metal. The amulet cases used vary in quality to suit the fancies and purses of the wearers. They are of the type common in the Nearer and Middle East, consisting each of an inner cylinder of common metal, closed at one end, into which the yantra is slipped, over which slides a closely-fitting outer cylinder, closed at the opposite end, of such material and workmanship as may be desired. Silver, some hard white alloy (such as German-silver), copper, and brass are the materials most commonly used for the outer cylinders. Some forms of such amulet cases are shown on Plate XVI, Figs. 22, 23, 24, 25. Yantras upon metal (Plate XVI, Fig. 26) seem to be less often carried without cases than those upon ola-leaves, due perhaps to the greater difficulty of keeping them from contamination, and, possibly, to some discomfort caused by the sharp edges.

Yantras upon ola-leaves are very frequently carried without a metal case. They are brought into small compass, and are then bound with cord (as shown in the specimens on Plate XVI, Figs. 27, 28, 29, 30, illustrating some of the numerous methods of cording). A few turns, usually two or three, are taken round the packet, and the cord is then twisted amongst and across these before passing to form the next set of turns. Sometimes the cording is very carefully done, and presents a quite artistic appearance. I do not know whether the various patterns used differ in significance; I think that they are merely matters of fashion or taste—for example, the two packets shown in Figs. 27 and 28 are old, I was told, because the particular style of wrapping and cording they exhibit has not, since a considerable number of years, been used in the Colombo district, whence they came. Frequently the ola-leaf has no covering except the cording; sometimes a piece of cloth is put on. In one of my specimens the sole covering is a thin sheet of gilded copper.

Should the wearer of a protective yantra be exposed to envy, jealousy, or the like, in such a manner that, but for his yantra, he would be injured, his yantra may burst its covering.

When, as sometimes happens, a large sheet is required for the inscription of a yantra, several broad ola-leaves are sewn together along their edges in the direction of their length, and the yantra is inscribed upon these as if upon a single sheet.

In addition to yantras for the purposes specifically mentioned above, there are yantras for the protection of children, for the cure of a crying child, for the cure of many different maladies and the effects of sorcery, for the protection of a

house and its inmates from all manner of evils, and for many other purposes. There are yantras which, written out and carried, or tatued upon the breast or arms, protect their bearers from wounds and injuries of all kinds; a yantra, with the figure of the King of the Cobras, protects against the bites of serpents; and another, including the figure of a fish, used in like manner, protects from dangers of every kind in or upon the water.

A yantra called *Ratana* (?) yantra (jewel (?) yantra), which may be carried on the person as a protection against lightning, is sometimes kept in a house, within a sort of little cubicle formed of white cloth, which preserves it from dust and dirt, before which a little incense is burned each evening. By the attentions thus paid certain of the deities are pleased and thereby caused to extend their protection, against all evils, to the house, and especially Aruchéna (see "Protection, Lightning"), who preserves it from danger by lightning.

There are other yantras which, kept in a house, will bring the good-will and favour of other people, and much business, to their possessors. See "Thieves (charms used by, etc.)" for yantras to protect against theft.

Amongst the yantras I obtained was one, inscribed upon a thin sheet of soft white metal, partially covered with wax produced by a certain kind of small black bee, and enclosed in a white metal amulet case. It was said to be a remedy for any one of seven kinds of eruptive epidemic diseases (small-pox, chicken-pox, and the like), and, when used, had to be tied upon the patient's bed. It (together with its wax) had been charmed during a period of nineteen days in a place to which there came no sound of ordinary human life. Together with a number of others it was prepared in anticipation by a charmer, upon the approach to his village of an epidemic of the kind mentioned, and was sold to the villagers when the sickness attacked them.

Description of Plates.

PLATE XI. Objects from a Devil-Dancer's Outfit [Set I].

PLATE XII. Objects from Devil Dancers' Outfits.
- Figs. 1, 2, 3.—Masks, Set II, Nos. *k*, *o*, *n*.
- Fig. 4.—False Mouth, Set II, No. *q*.
- Fig. 5.—Paper Crown, Set III, No. *d*.
- Fig. 6.—Red jacket, Set III, No. *a*.
- Fig. 7.—Wooden Doll for use in Conception Ceremony.
- Fig. 8.—Torch used in dancing.

PLATE XIII. Representations of Devils.

PLATE XIV.
- Figs. 1, 2, 3.—Representations of devils.
- Fig. 4.—Altar outside patient's house.
- Fig. 5.—Drum-beater for devil-dancing.
- Fig. 6.—Devil's blue dress with Nâga mask.

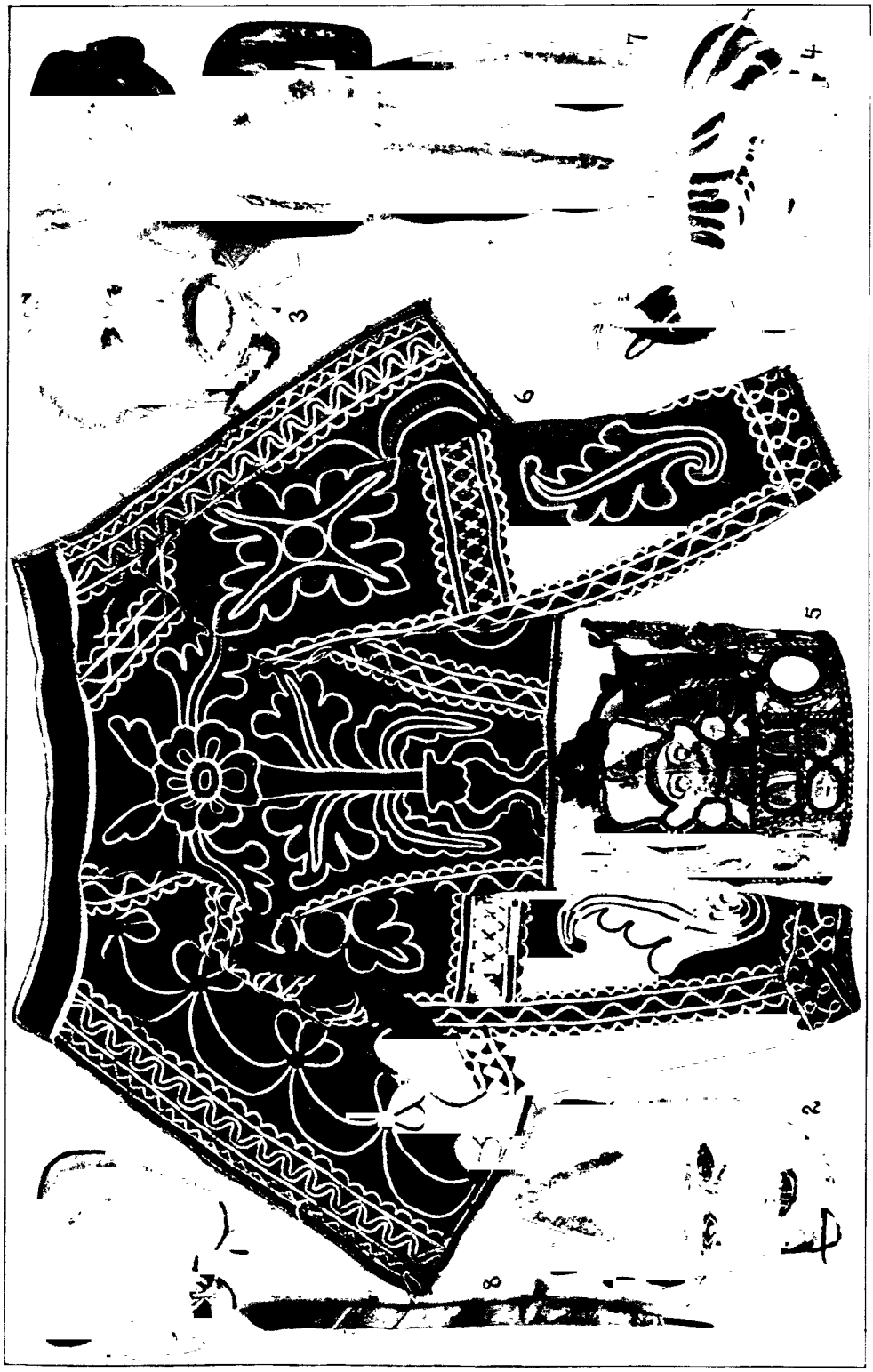
Fig. 7.—Devil's red dress with Garuda and snake mask.
Fig. 8.—Dancer dressed for a conception ceremony.
Fig. 9.—Bullock with protective branding.
Fig. 10.—Bullock wearing iron amulet at neck.
Fig. 11.—Bullock wearing chank shell and hair-rope on horns.

PLATE XV. A. Amulets.
Fig. 1.—Charmed thread.
Fig. 2.—Armlet for cramp.
Fig. 5.—Iron child's anklet.
Figs. 6, 7.—Silver Tamil "fig-leaves."
Fig. 8.—Pewter Tamil girl's waist-string.
Fig. 9.—Pewter Tamil boy's waist-string.
Figs. 10, 11, 12, 13, 14.—*Pañcháyuda.*
Fig. 15.—Amulet made of five metals.
Fig. 16.—Amulet of alloy of five metals.
B. Votive Offerings.

PLATE XVI. Amulets.
Fig. 1.—Bone for cramp.
Fig. 2.—Infant's wrist amulet.
Fig. 3.—Iron amulet for bullock.
Fig. 4.—Bone ("ivory") amulet for bullock.
Fig. 5.—Medicinal amulet for bullock.
Fig. 6.—Black glass "Breaking Bangle."
Fig. 7.—Seeds for cough.
Fig. 8.—Bone ("ivory") finger ring.
Fig. 9.—Hair bracelet.
Fig. 10.—"Tiger's" tooth.
Fig. 11.—"Tiger's" tooth.
Fig. 12.—"Tiger"-skin armlet.
Fig. 13.—"Tiger" oil in case.
Figs. 14, 15, 16.—Finger rings of chank shell.
Fig. 17.—Finger ring of white glass.
Fig. 18.—Chank shell for bullock.
Fig. 19.—Hair-rope with chank shell rings, for bullock.
Fig. 20.—Amulet of horn.
Fig. 21.—Charmed musk-sac.
Figs. 22, 23.—Metal amulet cases.
Figs. 24, 25.—Amulet cases on silver chains.
Fig. 26.—Yantra on copper.
Figs. 27, 28, 29, 30.—Yantras on ola-leaves.
Fig. 31.—Black glass finger ring.

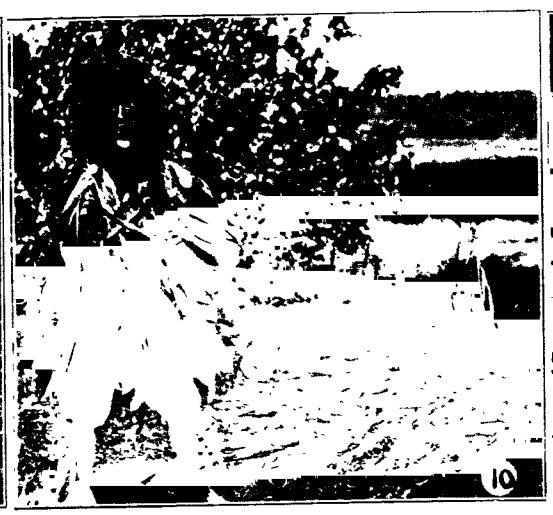
PART OF A DEVIL-DANCER'S OUTFIT.

SINHALESE MAGIC.



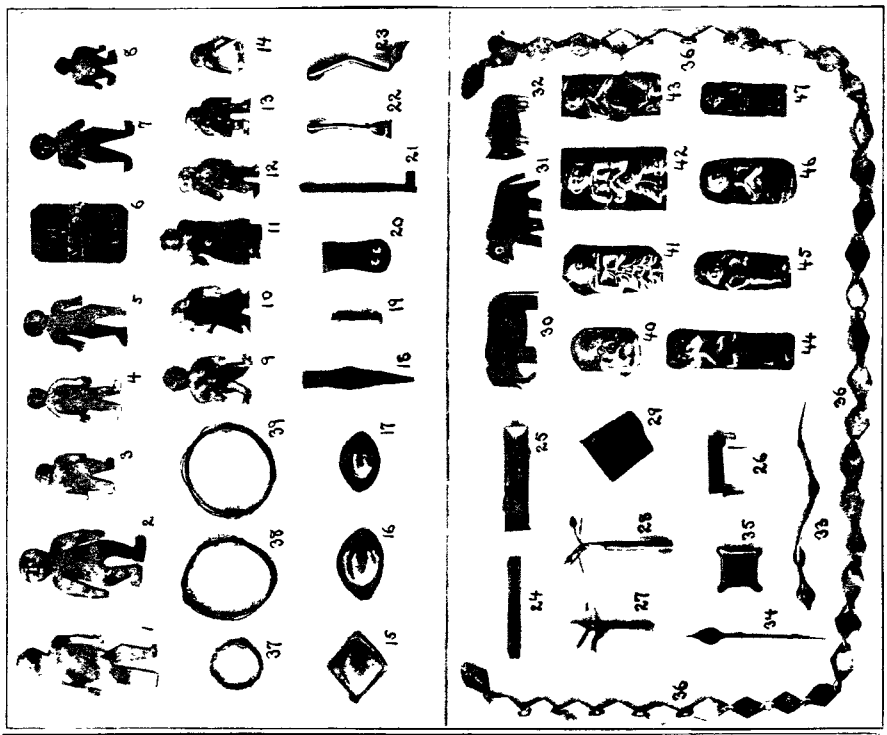
OBJECTS USED IN DEVIL-DANCING.

SINHALESE MAGIC.

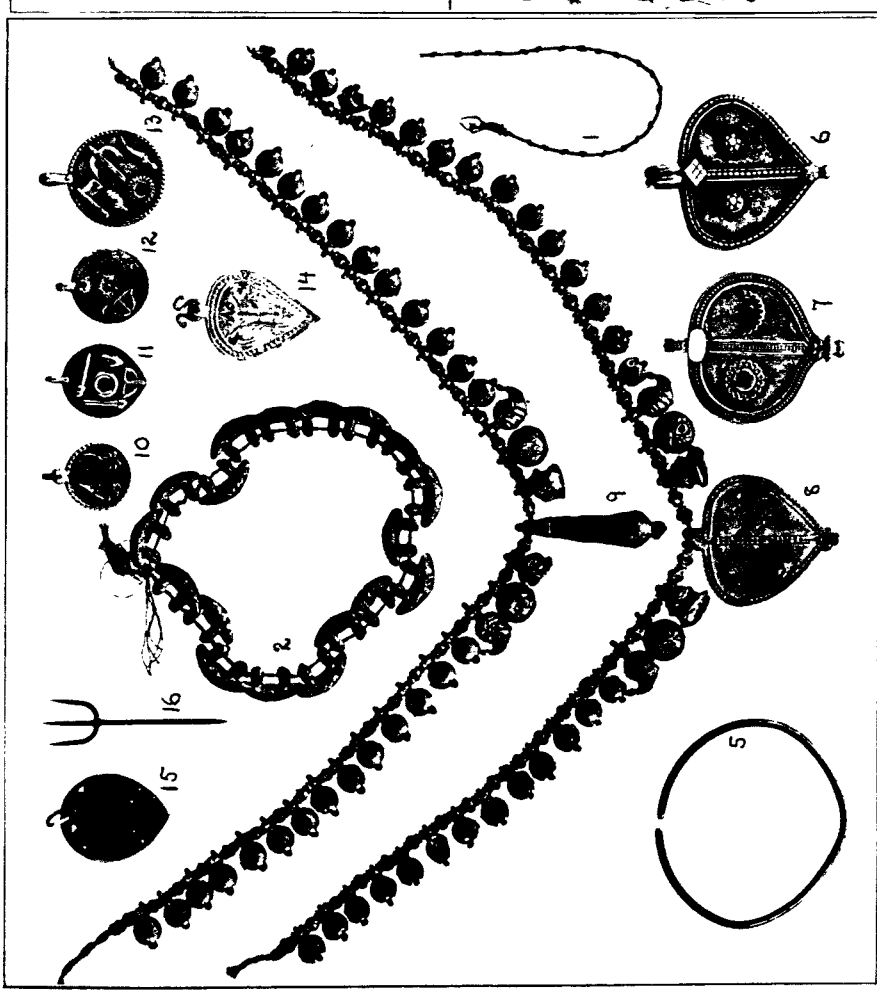


SINHALESE MAGIC.

SINHALESE MAGIC.

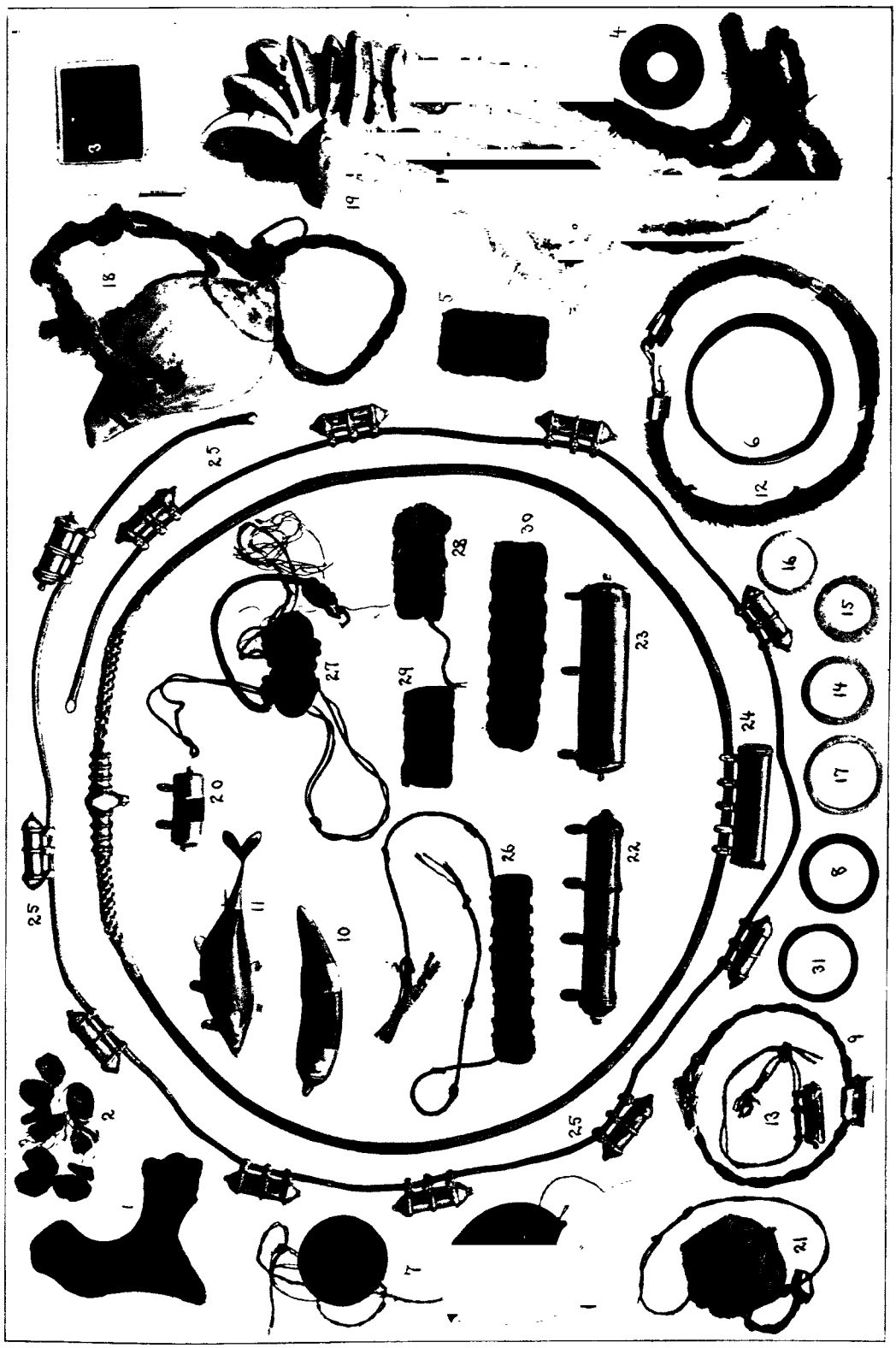


B.—METAL VOTIVE OFFERINGS.



A.—AMULETS.

SINHALESE MAGIC.



AMULETS AND AMULET CASES.
SINHALESE MAGIC.

A MALAY CIPHER ALPHABET.

By R. A. Kern, of the Netherlands Indian Civil Service.

[With Plate XVII.]

Prefatory Note by C. O. Blagden, M.R.A.S.

The subject of the following communication is a secret script or cipher alphabet which is occasionally used by the Peninsular Malays. Their ordinary writing, as is well known, has for some centuries past been the Perso-Arabic character, slightly modified by the addition of a few new letters, differentiated from their prototypes merely by the addition of a greater number of dots, to represent sounds (such as *ṅ* (*ng*), *ñ* (*ny*) and *p*), which occur in Malay but not in the Arabic language.

The existence of this secret script has been known to a few European scholars —among them Mr. Hugh Clifford and Mr. Hervey – for some time past, but I believe it has not hitherto been communicated or described. It does not appear to be known to very many Malays, nor is it in very frequent use.

The immediate occasion of its discovery was a request addressed to Mr. G. M. Laidlaw, of the Perak Government Service, by Mr. W. W. Skeat, to search for possible traces of the pre-Muhammadan script known to have been employed by the Malays of the Peninsula in former times. Mr. Laidlaw, in the course of his search, came accidentally on the track of this cipher alphabet. Mr. Laidlaw, to whom the credit of supplying this record of the secret script is therefore due, was told that this was the writing in which the *Chiri*, the old coronation formula of Malay rajas (which is certainly of Indian origin and apparently Sanskrit, in a corrupt form) was written down, and from which it was subsequently transliterated into the modern Malay Arabic character.

This, of course, is a question of fact, but even if it could be proved that the *chiri* had been for some time past thus kept secret from the mass of the people, there can be no doubt that this cipher does not represent the script in which the *chiri* would have been originally written down. It does not appear that this secret script stands in any close relation to the old alphabet of the pre-Muhammadan Hinduized Malays. Dr. Kern, to whom, as the highest living authority on these subjects, I forwarded a specimen of this *gangga Malayu*, as it is called, writes that the old Hindu script of the Malays is still in use in the neighbourhood of

Palembang (Sumatra), where it is known as the Renchong alphabet, and that it is quite different from and apparently unconnected with the *gangga Malayu.*

From a simple inspection of the latter, I had observed that the system on which the vowels were denoted seemed to indicate some sort of Indian influence, but this fact is sufficiently explained in Mr. R. A. Kern's paper, in which it is ascribed to a Javanese model. The Javanese alphabet is, of course, ultimately of Indian origin.

It is obvious that a great part of the *gangga Malayu* was made up from a limited number of elementary letters, modified more or less on the lines of the Arabic character: but it at first seemed possible that some, at least, of the primary elements themselves might be of ancient date, and might possibly go back to pre-Muhammadan days. The early history of the Peninsula is so obscure that one cannot but wish it, and it would indeed be interesting, if any student of Indian scripts should be able to prove such correspondences in the case of the ten letters (*jim, cha, ha, kha, pa, kop, kap, ga, nun* and *wau*) that remain unidentified by Mr. Kern. In any case this cipher is not without interest as affording fresh evidence of the inventiveness of the Malayan culture, and it is hoped that other versions will now be collected and throw additional light on its origin. In the meantime I may be permitted to express here my obligation to Dr. Kern and Mr. R. A. Kern for the valuable information on the subject which they have been good enough to contribute.

Mr. C. Otto Blagden lately wrote to my father enclosing a short letter in a Malay cipher script together with an alphabet. The existence of the script was said to be known to a few European officials in the Malay peninsula, but the fact has not yet been recorded in any scientific journal.

The specimen supplied originates from the native state of Perak on the western coast of the Malay peninsula, north of Malacca. The existence of the script is reported to be known to many Malays and to be used to some slight extent, though we are not informed what are the cases to which its use is limited. The native who furnished the cipher tells us that he learnt the script from his father, but he is unable to furnish any information as to its origin. So we can only conclude that it is not of very recent contrivance. It is called by the natives *gangga Malayu.*

The alphabet consists of thirty-two characters, corresponding to those of the Arabic-Malay alphabet, *fa* (ڤ) excluded. The greater part can be traced back to the usual characters, being reversions of these in a vertical or horizontal direction, and by the replacing of the dots by short strokes variously attached to the character that forms the basis of the several letters, which are differentiated in the ordinary writing by the number of dots employed in each case. The letters with a vertical position (*alif* ا and *lam* ل; for *dal* د see below) are reversed along a vertical line, the Arabic *lam,* with a slight modification, thus giving the form of the cipher *lam.*

The following letters which have a lateral extension are reversed horizontally (*e.g.*, ـبـ becomes ـبـ): they are *ba, ta, mim, ha, ya, nya.* The common fundamental types of *ba, ta,* and *nya* can easily be recognised in the accompanying alphabet, the strokes being variously represented: thus *ba* has a cross stroke at the foot of the vertical line; *ta* has the same but prolonged, as is also the horizontal line of the fundamental type. Both of these strokes are slightly curved, thus making the difference between *ba* and *ta* the more obvious.

When not standing alone or at the end of a word, *ya* in the ordinary Malay script, with the exception of the dots, is the same as *ba.* In the secret script we find them to be the same also. Instead of two dots, a stroke is drawn parallel to the vertical stroke at the left end of the horizontal line. *Nya* (with three dots in the ordinary writing) looks like *ya,* but has an additional stroke in the centre, parallel to those at the two extremities.

M is the reverse of ـمـ (initial), the left end being prolonged into a curl (ـم).

H at the end of a word is usually written in Malay ـه. By reversing it horizontally (as in the case of *m*) we get the *ha* of the secret alphabet.

The letter *tha* (ـث) in the Gangga Malay, I cannot make out; it does not appear to be what one would expect, viz., the same character as the secret *ba,* distinguished by strokes.

J, h and *kh* can all be reduced to a common type, resembling the Roman *H*; *kh* has the cross stroke produced horizontally to the right; *j* has in addition a horizontal stroke connecting the upper extremities of the vertical lines. I do not see any correspondence between the Arabic and Gangga Malayu fundamental character, nor between the three before mentioned and *cha,* which stands wholly apart.

Dal in Gangga Malayu is a double letter formed by د and its reverse (separated by a vertical line), which cuts the letter in the middle; the Gangga *ra* appears to be the Arabic *ra* placed horizontally.

The dots of *zal* and *ze* have been replaced in both cases by a stroke.

Sin and *shin* are a pair of unidentified letters. They bear some resemblance to these letters in ordinary Malay, as they are usually written at the beginning of a word. The substituted stroke for the dots appears here too.

Sod is the Arabic character ص without the downward curve; *toh* is the Arabic ط with the omission of the vertical line, the dots of *thod* and *zoh* being again changed to strokes.

Substantially the letters *ain, rhin* and *nga* have become a curve left open at the top; in the middle of the curve strokes have been drawn upwards and downwards to distinguish *rhin* and *nga.*

Pau, na and *wun* are wholly unintelligible to me; so is *ka.* The development of *ga* from *kap* is clear; *kop* is half a *ga.*

The vowels and many marks belonging to the Arabic alphabet have also been provided for in the Gangga Malayu. Two striking features may be observed.

Some of them are the Malay reversed in the same way as some of the consonants described above, so that what is usually written above the letters is now placed below them and contrariwise. Secondly, some of the marks of the Javanese script have been imported.

The vowel *a* is not expressed, the consonant, without further explanatory token, being pronounced with an *a*-vowel, *ba*, *ta*, *na*, etc.; only *aa* is indicated by the *fathah*, placed below the consonant.

No difference is made between *a* and *ĕ*.

In Malay, two letters only, و and ي, are used for representing the vowels *o* and *u*, *e* and *i*. In the Malay cipher alphabet this system has been retained, but the vowel-marks used are not to be derived from Arabic-Malay prototypes. They are Javanese, though written in the Malay manner. The Javanese script has four distinct types for *i*, *u*, *e* and *o*, but only two of these (*i* called *wulu* and *u* called *suku*) have been adopted, their employment being extended to *e* and *o* respectively.

The vowels *i* and *ai* are distinguished from one another in a somewhat original manner. If the *wulu* is required to express *ai* the consonant bearing the *wulu*-mark is followed by a *jazma'd y*.

Wulu and *suku* are always written, making the use of *kesra* and *dhamma* superfluous.

The *tanwin* are constructed as follows: *an* is written under the line, *in* above. The two strokes no longer run parallel but at right angles to one another. *Un* is indicated by the *suku*, intersected by a stroke. This mark is apparently also used to render the ĕ or a of the suffix -kĕn (-kăn).

The *tashdid* is moved from the upper to the lower side of the line without being reversed.

The *jazma* is also moved to the lower side and takes the form of a dot.

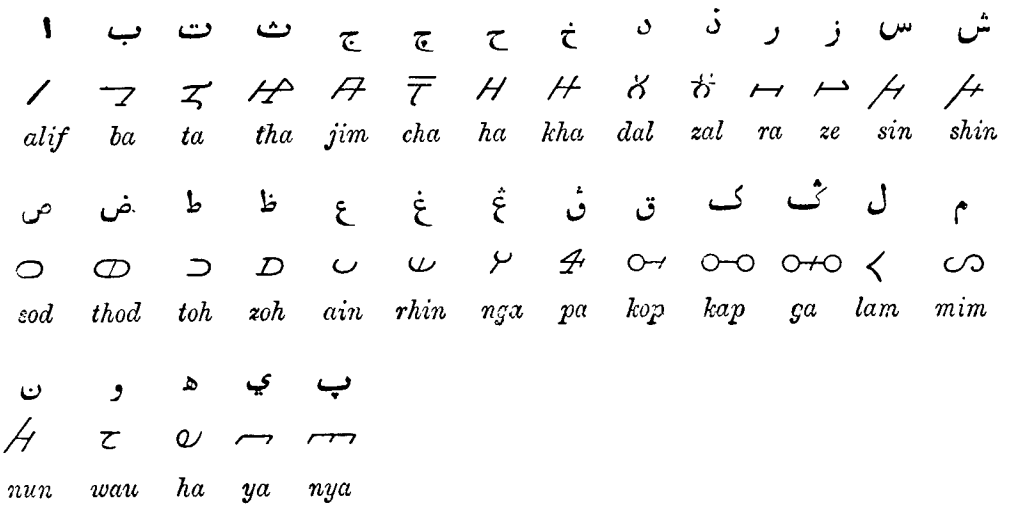
The above letter gives no information bearing on the use of *wasla*, *madda* and *hamza*.

In addition, two more Javanese symbols are used in the letter, the *layar* ꦂ and *chĕchaq* ꦁ, both totally unknown in Malay writing. In Javanese both are placed above the consonant and have the effect, in the case of the *layar*, of closing the syllable with an r; in the case of the *chĕchaq* with the nasal letter ng. In the Gangga Malayu this disposition has not been changed.

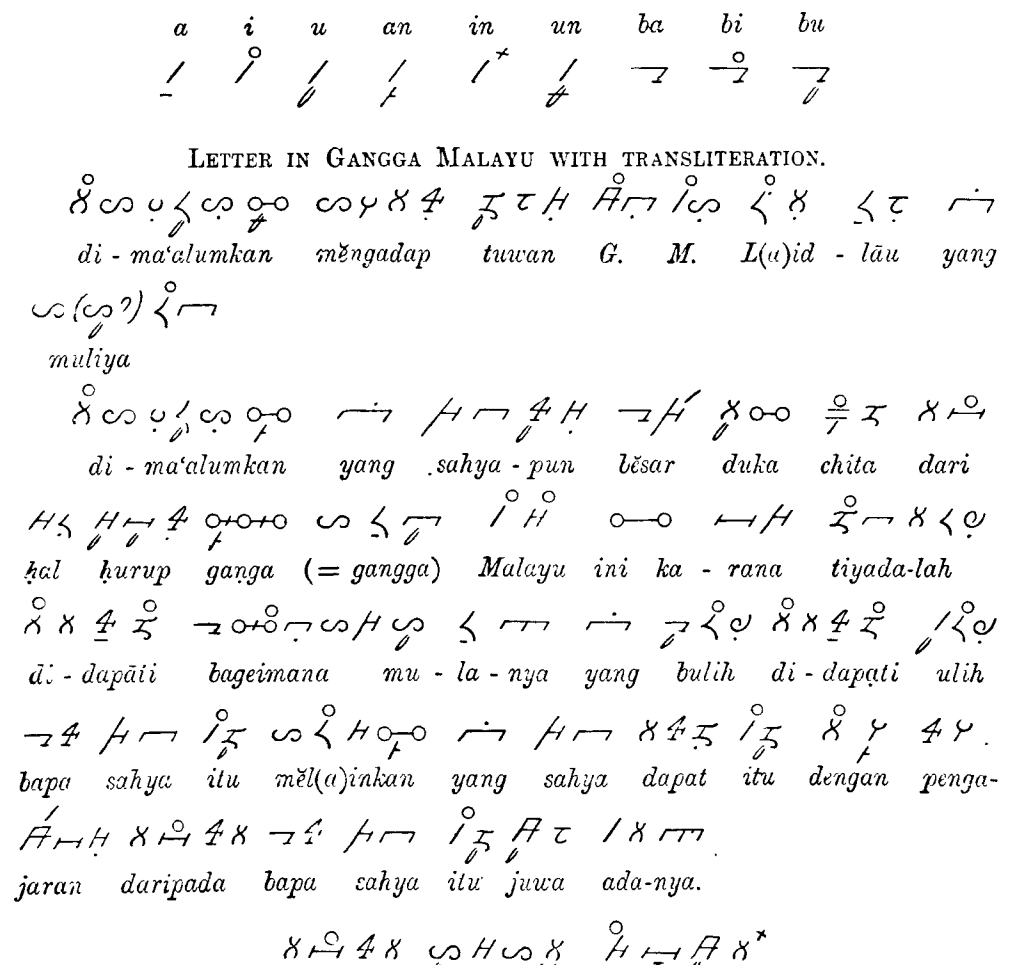
As to the form of numerals, 2, 6, 7, 8, 9, are one series; 3, 4, 5, a second, both being formed in the same way by adding a stroke to each succeeding figure. O is the Javanese o. The relations of 1, 2, 3, need no further explanation.

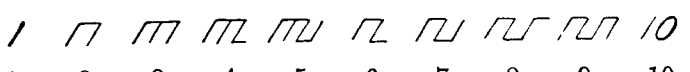
Though the Javanese have a script of their own, which is used in their everyday life, the Arabic characters are known to them also, and are not confined to works composed in the Arabic language only. They are highly in favour with pious Mohammedans and have been adapted to writings in Javanese, especially on religious subjects, but, unlike the Malays, the Javanese when using the Arabic characters, are anxious to express all vowels quite distinctly, in accordance with their own script, which is exemplary in this respect.

Arabic-Malay Alphabet and Gangga Malayu Compared.



Letter in Gangga Malayu with transliteration.





A MALAY CIPHER ALPHABET.

Now, as I have set forth above, the Gangga Malayu is intermixed with marks peculiar to the Javanese script, but these marks have not been consistently adopted in their entirety. This leads me to suppose that the Gangga Malayu has been invented by Javanese living in a Malay country and well acquainted with the Malay way of writing, so as to feel no inconvenience in expressing the vowels in the less accurate Malay manner.

There are many Javanese living at Singapore and at other spots along the coast of the Malay Peninsula (religious men among them), which fact seems to support the above supposition. There have also been, for centuries, Javanese settlements in various parts of the Peninsula.

Further investigations may, I hope, throw more light on the question of the comparative age of the Gangga Malayu and the extent of its distribution.

TRANSLATION OF THE GANGGA MALAYU LETTER. [Plate XVII.]

[This] information [is] unto-the-presence of Mr. G. M. Laidlaw [who is] illustrious.

He is informed that I [am] very sorrowful with regard to [the] letters of Gangga Malayu this because [I have] not got [*i.e.*, acquired them] as originally they were able to be got by my father that however which I [have] got that [is] through instruction from my father.

From Muhammad Sirajudin.

[Numerals up to ten follow.]

A LAST CONTRIBUTION TO SCOTTISH ETHNOLOGY.

By John Beddoe, M.D., LL.D., F.R.S.

[With Plate XVIII.]

I propose a little consideration of the progress of Scottish Ethnology, before entering on any criticism of Mr. Gray's valuable paper (*Journ. Roy. Anthrop. Inst.*, xxxvii, p. 375).

Fifty-five years ago, when I brought out my *Contribution to Scottish Ethnology*, there were others already engaged in laying the foundations of the subject. Daniel Wilson had anticipated the theory of the succession of Neolithic dolicocephali and bronze brachys, which Thurnam afterwards elaborated; and Arthur Mitchell had studied the physiognomies of Northern Scotland, and carefully marked out three leading types. My observations showed the preponderance of light eyes with dark hair on the western, and of light eyes with light hair on the eastern, and especially the south-eastern, side of the country, with an increase of dark shades in the towns.

Next in order (in 1870) came my collections for the Stature and Bulk of Man in the British Isles, printed in the *Anthropological Memoirs*, vol. iii. Among the reports sent in to me were many of great value; and some of those from lunatic asylums were by distinguished men, such as Sibbald, Aitken, Howden, Grierson, Lindsay. Noteworthy deductions were the great stature in the Merse, Upper Galloway and Kyle, the inferiority of lunatics to the general population, the physical degeneration in the great towns. These are more or less confirmed by Mr. Tocher's recent observations on the insane.

Next in order came the observations on the West Highlanders, respecting stature, colour and craniometry, contained in my *Races of Britain*, 1885. The chief points were the good stature, 1727 mm., the preponderance of light eyes and dark hair, the large size and low breadth index (76·27) of the head.

Next followed an important advance due to Sir Wm. Turner, who, dealing with a large quantity of material, showed the hitherto unknown frequency of brachycephaly in modern skulls from such districts as East Lothian and Fife, but not, apparently, in the west.

On Mr. Tocher's statistics of the insane, published by the Henderson Trust, I have already commented. They agree with mine of forty years ago in indicating a higher stature in Argyle and in the Border Country than elsewhere. He also agrees with me in showing a low cephalic index for Argyle, while over the whole north of Scotland his indices are high for Britain, 78 or more. His mean stature for the whole of his material is lower even than mine (65·86 inches or 1673 mm.), mine being 66·62 inches or 1692 mm.; but this difference probably arises not so

much from a real fall in average stature during the last generation, as from the fact that my directions to my helpers excluded idiots, persons not in good bodily health, and those under twenty-three or over fifty years of age, whereas his did not.

I come now to the latest contribution to our subject, the pigmentation survey of Mr. John Gray and Mr. Tocher.

The method of collecting the facts, viz., the colours of the hair and eyes in all or most of the school children of Scotland, left, I think, little to be desired; though Mr. Gray rightly regrets that standard colour-cards could not be used, owing to the failure of the people employed to produce sufficiently accurate ones. Many attempts have been made in former years to produce such cards, in fact all of us, from Broca downwards, who have been interested in the subject, have tried our hands on such attempts; for example, General Pitt Rivers made an endeavour, and took great pains about it; but the result was a lamentable failure. The tints were flat, and flat tints cannot represent hair. I tried stripes without satisfying myself. The only man who has ever been moderately successful has been Topinard, who collected and arranged his material for all France with the assistance of irregularly striped and coloured diagrams, which, however, represented only the median tints (our brown, the French *chatain clair*, the German *hellbraun*); he also designed representations of the median hues of eyes, dark grey, pale ashy brown, hazel-grey, light fawn and green. With these one can produce tolerably trustworthy indices of nigrescence of both hair and eyes.

It is as impossible, however, entirely to get rid of the personal equation as it is to command the weather. Sunshine or shade, clear or dull sky, indoor or outdoor observation, must always affect our judgment of colour, which, one needs to remind oneself sometimes, is not an intrinsic quality of objects.[1] But internal evidence leads me to appreciate highly the work of these Scottish schoolmasters, from this point of view.

Among the numerous small difficulties with which one has to contend in this kind of quest, is that of correctly correlating the hair-colour of boys and of girls, the former generally short-cropt and neglected, the latter long, outspread, combed, often washed. Exposure to water, especially soapy water, sun and air, tends to bleach the tips and surface at least of the hair. Natural sexual differences of this kind have not been very much studied; but my own observations point to greater pigmentation of eye, if not of hair also, among females in Great Britain, and Havelock Ellis (*Man and Woman*, pp. 224–228) adduces a good deal of evidence to the same effect from other countries. The Scotch schoolmasters find no great difference on the whole, 22·81 per cent. of dark eyes in the girls to 22·31 in the boys, and 26·57 of dark hair to 26·27. There are several districts (*e.g.*, Midlothian, Sutherland, Dunfermline) where the hair of the girls comes out much lighter than that of the boys, and a few (*e.g.*, Islay, etc., Nithsdale, Kirkcaldy town) where

[1] Topinard's standards are for use in bright sunlight. Their employment in Scotland would yield too many blonds.

their hair is lighter and their eyes are darker. Mr. Gray, a strong believer in sexual heredity, seems to think that Queen Margaret may have brought the fair Saxon ancestresses of the Dunfermline girls from England with her. I am more disposed to think that the matrons of "grey Dunfermline" washed their daughters' hair preparatory to the inspection, especially when I note that the eye-index of the boys and girls is identical. It is perhaps to be regretted that Mr. Gray did not affix anything beyond mere ordinal numbers to his 110 or, more accurately, 102 districts, as a means of identification. In a large number of cases, in a majority indeed, their boundaries do not correspond with those of counties or other well-known divisions, and as laid down in the map are not strictly accurate. Though I am probably as well acquainted with Scottish topography as most Englishmen. I cannot positively identify some of these districts, especially the small ones around Glasgow, and in the tables which I have drawn out from Mr. Tocher's figures I have been obliged to trust to, and cite, the numerals alone in several cases.

The inclusion of jet black among the categories of hair-colour is fully justified by the results of this census. The personal equation may interfere here as elsewhere, but less often than in the cases of "red" and "fair," for example, in which the boundary is less distinct, and error is easy. The average of jet black hair in Scotch children is set down at about 1·2 per cent. in both sexes; but I find over 2 per cent. reckoned in fifteen districts. In three of these this proportion is reached in boys only, though there is a considerable but smaller excess in the girls also. These are Nos. 55 and 56, East Fife: 95, East Ross; and 90, Lower Moray. In five it occurs in girls only, these being 59, Stirlingshire, Menteith, etc.: 93, 94, Beauly and Lochness; 103, Arran and Kintyre: 107, Uist; and 108, Lewis and Harris. The seven in which both sexes present this great excess of jet black are 70, 71, Athol and Breadalbane; 91, Strathspey; 99, Skye, W. Ross, Glenelg; 100, Mull, Morven, etc.; 97, Caithness East Coast; 70, Gowrie; and 18 (probably the town of Paisley). It will be seen that with the exception of the long-urbanized Paisley, and of East Fife, an ancient seat of foreign commerce, the whole fifteen are either within, or astride of, the Highland frontier. Except Paisley, there is not a single instance south of the Forth, nor one between the Spey and the Firth of Tay.

Surely there is something "racial" here. Jet black hair does not readily develop, it would seem, from urban selection; otherwise Paisley would not stand alone as a town in our list. It belongs apparently to the Gael, but not to the Scots of Dalriada alone, but also to the eastern and northern Gael,[1] who are at least partly of Pictish descent. It does not, however, seem to be conspicuous in Mr. Gray's Galwegians, who were the only Picts still known as such in the middle ages, and who still rank as dark haired both with him and with me.

I cannot understand under what curious misconception Mr. Gray can be lying, when he says (p. 384) that "black hair is not stated in a separate category

[1] *i.e.*, the excess of black hair is common to the speakers of all three dialects of Scottish Gaelic.

by European observers," and (p. 385) that "there are no data" (as to black hair) "for comparison with other countries." So far from this being the case, there is scarcely a European observer of children's colours who does *not* make black a separate category. Virchow in Germany, Georg Mayr in Bavaria, Schimmer in Austria, Majer and Kopernicki in Poland, Kollmann in Switzerland, have all done so. So did Vanderkindere in Belgium, but as I have elsewhere[1] pointed out, his observers included many dark browns under black (*noir*) just as Virchow's included under blue eyes our blue-greys if not even some light greys, so vitiating comparisons. Livi and Retzius and Fürst all employed a black category, but as they worked on young adults their results are not comparable with Gray's.

The modern biometrical school seems to be bent on upsetting our most cherished prejudices. And Mr. Gray, on the strength of an observation in the fashionable county of Dorset, says that "it is probable that there is not much difference between the percentages of red hair in Scotland and in England": whereas we were accustomed to suppose that, barring perhaps the Votiaks and one or two other such remote tribes, the Scots were the most rufous folk in existence. In fact—not to quote my own pretty numerous observations—the military statistics of young male adults give, for Scotland, 4·7 per cent. of red hair; for Ireland, 4·5; for Wales, 4·4; and for England, 3·5 per cent.[2] There is little in Holland (1·81) and not much in Flanders (2·18); but in Westphalia and other parts of the old Saxon land I found as much as 3·8 per cent. The German red, however, usually verges on pale yellow; and the great unpopularity of the colour in Germany led to its being almost ignored by Virchow's schoolmaster-agents.

I have constructed a map to illustrate the tables into which I have boiled down those of Messrs. Gray and Tocher. It is based on the Compound Index of Nigrescence, which is gotten by adding the index of the eyes to twice the index of the hair; this is done with the object of attributing greater weight to the more important characteristic. But I have also inserted the original Index of Nigrescence, which represents the hair only, and is gotten by subtracting the red + the fair from the dark + twice the black. It is generally positive in England and Scotland, and almost always in Ireland. The eye-index, also inserted, is gotten by subtracting the light, including blue, blue-grey, and light grey, from the brown or dark, neglecting, as in the case of the hair, the median hues: in Scotch children this is always a minus quantity, as is also the compound index.

I think it will be acknowledged that the racial indications of Messrs. Gray and Tocher's figures are most simply and clearly developed by my map and tables. Probable influences of climate, if they exist at all, are indistinct. The west and south-west of Scotland are warmer, no doubt, than the east and north-east, and also wetter and perhaps less sunshiny, and they furnish the largest proportions of dark hair. But racial and historical causes will account for most of the phenomena,

[1] In my Huxley lecture on "Colour and Race" (*Journ. Anthrop. Inst.*, xxxv, 1905, p. 219).

[2] *Races of Britain*, pp. 190–193. In the north of England the percentage is higher, in the south lower than this.

(among which is the fact that most of the fairest districts lie well towards the south) while urban selection may be appealed to for an explanation of the rest.

The indications are that the earlier pre-Anglian population was generally dark in hair and light in eye, though it spoke two if not three different languages, and though there may have been differences in prevailing types corresponding thereto to some extent.

It would be of great interest if we could make out a surviving type for the Strathclyde Walenses, who were still distinguishable from Scots, Picts and Angles, in the earlier middle ages. But the place-names in Strathclyde and its neighbourhood do not help us much, and the Welsh were probably Anglicised before the general adoption of surnames.[1] The range of hills that separates Lanarkshire from Ayrshire would probably be the best hunting ground for traces of them, and perhaps Lesmahagow and Douglasdale would repay investigation.

I have made an endeavour to divide most part of Scotland into several ethnological provinces, using Mr. Gray's data, and averaging the divers indices of the several districts included in each province. This method is not arithmetically accurate, of course, but it is sufficiently so for my purpose.

Provinces.	No. of districts.	Indices of		Compound index.
		Hair.	Eyes.	
Anglian	7	−10·7	−25·6	−47
N.E. Lowlands	10	− 8·4	−24·5	−41·3
Fife, etc.	6	− 7·9	−21·6	−37·4
Norse (more or less) ...	6	− 6·7	−23·3	−36·7
Clydesdale	12	− 6·1	−24·	−36·2
East Highland	4	− 1·4	−29·9	−32·7
Galloway...	3	− 1·1	−23·1	−25·4
West Highland ...	6	+ 2·5	−27·5	−22·5
Towns	20	− 1·38	−19·8	−22·5
SCOTLAND		− 3·84	−22·5	−30·2

The provinces are here arranged in the order of lightness of both eyes and hair; but it will be observed that the order of index of hair, taken singly, almost exactly corresponds, whereas the index of eye-colour runs irregularly, and is largest in the Highlands. I have excluded from my province of Clydesdale, whose limits are those of Mr. J. A. H. Murray's dialect map, the populous districts around Glasgow, as having been foci of recent immigration and perhaps, too, areas of some forms of selection. There is nothing clearly distinctive about the Clydesdale figures—just a trifle more darkness of hair and lightness of eye than

[1] The distinguished surname of Pringle (Hopringle or Ap-pringle) is claimed as Welsh; but I know of no other presumably Welsh patronymic in southern Scotland.

in the means for all Scotland. Two considerations occur to me, first, that the Kymric Kelts in Scotland simply overlay the Gaels, and, though they changed the language, may not have much affected the physical type; and second, that, judging from the place-names and what of local history remains, it is likely enough that at one time and another considerable waves of Anglian colonization may have overflowed Lanarkshire and Kyle and Cunningham; the last district, by the way, actually bears an English name. And such waves may have lightened the colours in places, without much affecting the cranial or facial types.

Various lines of probability, among which these statistics of Mr. Gray's may be reckoned, combine to show that the native Keltic or Pictish population of the north-eastern Lowlands was gradually and almost wholly swamped by Flemish, Norse and Saxon settlers. Yet an ordinary map shows us comparatively few local names there that are not Keltic, fewer indeed, as I think, than in Clydesdale where such places as Dolphinton, and Symington and Eglinton bear witness to the settlements and their leaders.

Another district, interesting by reason of its very dark colours, is No. 95 of Gray, which apparently includes parts of the Munros' and Rosses' countries, and the south-east coast of Sutherland county. It may be considered in conjunction with 97 and 98, the two divisions of Caithness, which unfortunately have not been arranged to correspond with the boundary of the languages. Had they been so, perhaps we might have detected an ethnic difference between the eastern Norsemen and the western Gaels,[1] which, as it is, does not come out. Mr. Gray's 97 includes the long seaboard stretch of the Gaelic parish of Latheron; and though there are both Norse place-names and Norse surnames in that parish, all the Latheron men whom I have seen (and they have not been very few) have had dark or black hair.[2] Again, in east Ross and south-east Sutherland, such place-names as Tain and Dingwall, and Brora and Helmsdale, indicate a ruling population at least of Scandinavians; and though the clans Munro and Ross were probably purely Keltic, and the former is even derived by an untrustworthy tradition from Ireland, the names of the MacIvors and Gunns sound otherwise. These little districts deserve more minute study, which I hope Mr. Gray will be able and willing to give to them. He must have in his possession, and capable of separate analysis, the material for such districts as the Norwegian Butt of Lewis, where, as a native once told me, "there was something almost disreputable about dark hair," for Harris, or for the islands of Colonsay, Barra, Iona, Lismore, Jura, Seal, and Luing; or for such elevated villages as Castleton of Braemar, Wanlockhead, and Leadhills; for Coningsburgh in Shetland, or for that abode of giants Balmaclellan in Upper Galloway.

[1] See return from Forss in my *Stature and Bulk* in which it is well marked.

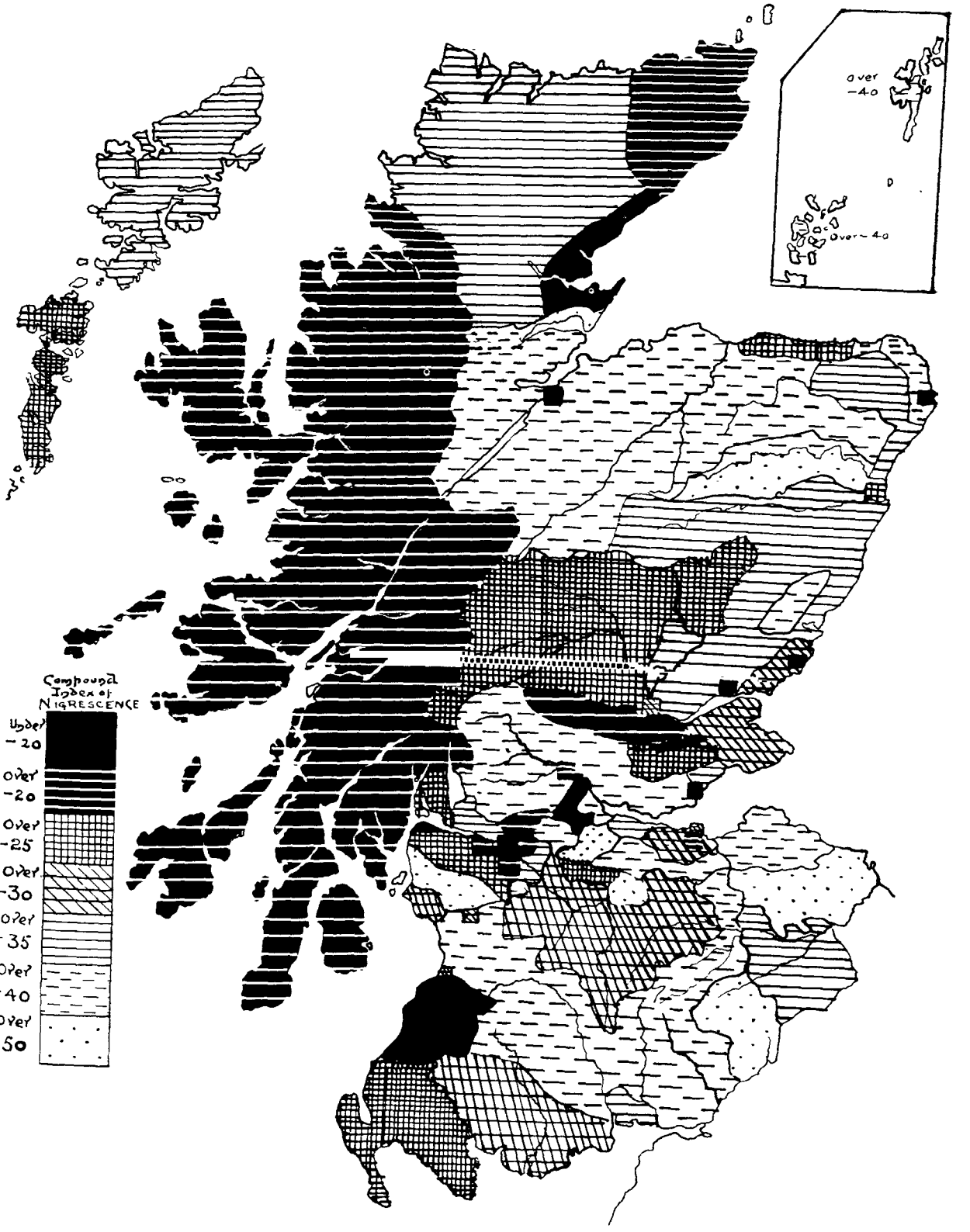
[2] The Norsemen often brought their thralls with them; and these might be of Finnish, or Irish or other alien blood, and may probably have been often brachycephalic as is the case in South-western Norway at this day.

TABLE INDICATING ORDER OF COLORATION IN MR. GRAY'S DISTRICTS OF SCOTLAND, FROM HIS OWN DATA.

		Index of Nigrescence, hair.	Index of Nigrescence, eyes.	Compound index.
64	Arbroath	+ 2·6	−11·5	− 6·3
95	East Ross and East Sutherland.	+ 5·6	−23·4	−12·1
50	Kirkcaldy	+ 0·9	−14·3	−12·5
13	Glasgow	+ 2	−18·3	−14·3
24	Greenock	+ 2·6	−20·5	−15·3
81	Peterhead	0	−15·4	−15·4
63	Falkirk	+ 1·8	−20·7	−17
31	Carrick	− 0·3	−18·7	−19·3
66	Dundee town ...	− 0·9	−17·8	−19·6
62	Denny	+ 0·85	−20·5	−19·7
92	Inverness town ...	+ 1·5	−22·8	−19·8
60	Stirling town ...	− 1·8	−16·7	−20·2
98	Caithness, inner ...	− 0·3	−19·9	−20·5
103	Arran and Kintyre ...	+ 1·6	−24	−20·8
104	Bute, etc.	+ 0·1	−21·5	−21·3
11, 14	E. and S. Glasgow ...	− 1·0	−19·4	−21·4
101	Lochaber	+ 3·1	−27·6	−21·4
100	Mull, Morven, etc. ...	+ 3·6	−29·5	−22·3
58	Strathearn	+ 1·9	−26·3	−22·5
18	Paisley town	− 1·8	−19·7	−23·3
102	Islay, Knapdale ...	+ 5·5	−34·6	−23·5
12	Kirkintilloch... ...	− 1·8	−20·6	−24·3
97	Caithness ... East Coast ...	− 3·5	−17·3	−24·3
19, 20, 22	Partick Govan ...	− 2·1	−20·2	−24·5
99	Skye, Glenelg ...	+ 1·1	−27	−24·7
107	Uist	+ 2·5	−31·4	−26·4
16	S.W. Glasgow ...	− 3·1	−20·3	−26·5
17	Renfrewshire, east ...	− 0·8	−25·3	−27
86	Banff, littoral ...	− 8·2	−10·9	−27·4
57	Fife, interior	− 5·1	−17·4	−27·6
32, 33	Wigtonshire	− 1·1	−24	−26·1
No. 4		− 2·6	−23·2	−28·4
44	Edinburgh city ...	− 4·1	−20·1	−28·4
21	W. Renfrewshire ...	− 3·1	−22·4	−28·7
71, 76	Athol	+ 0·3	−29·7	−29·1
105	Lennox, west... ...	− 1·6	−26·3	−29·5

		Index of Nigrescence, hair.	Index of Nigrescence, eyes.	Compound index.
77	Aberdeen city ...	− 5	−19·9	−29·9
25	Ayr town	− 2·7	−24·6	−30·1
	SCOTLAND	− 3·84	−22·5	−30·18
	Boys	− 2·94	−22·65	−28·53
	Girls	− 4·74	−22·35	−31·83
65	Angus, S. coast ...	− 2·9	−24·4	−30·2
29	Cunningham, littoral	− 3·3	−23·9	−30·5
34	Lower Kirkcudbright	− 2·1	−26·7	−30·9
7	?	− 4·9	−20·8	−30·7
46	Edinburgh, environs...	− 5	−21·4	−31·5
27	Kilmarnock	− 2·5	−26·5	−31·5
45	Leith	− 5	−21·3	−31·4
15	Blantyre	− 4·4	−23·2	−32·1
55, 56	East Fife	- 5·9	−20·4	−32·2
69	Perth city	− 7	−19·2	−33·2
3	Mid Lanarkshire ...	− 5·3	−22·6	−33·2
1	Upper Lanarkshire ...	− 7·2	−19	−33·5
6	?	− 6·2	−21·4	−33·9
41	Peeblesshire	− 5·8	−23·7	−35·3
No. 5	?	− 6·6	−21·9	−35·1
No. 9	?	− 5·6	−24	−35·3
35	Dumfries	− 5·2	−25·3	−35·7
84	Mid-buchan	− 3·5	−28·9	−36
70	Gowrie	− 7·4	− 21·5	−36·3
67, 68	Sidlaws	− 7·8	−20·8	−36·5
79	Deeside	− 2·7	−31·5	−37
78	Aberdeen, littoral ...	− 8·3	−20·8	−37·2
72	Mearns and Angus, littoral.	− 6·9	−23·4	−37·2
48	Linlithgow	− 7·3	−23·4	−38·1
74	Mearns, littoral ...	− 5·4	−28	−38·8
54	Fife, mid. littoral ...	− 9	−21·5	−39·5
39	East Roxburgh ...	− 8·1	−23·3	−39·5
106	Dumbarton	− 9·4	−21	−39·8
75	Mearns, hills... ..	− 8·1	−23·6	−39·8
96	Sutherland	− 7·4	−24·9	−39·8
106	Lewis...	− 9·5	−20·9	−39·9
10	N.E. Lanark	− 8·4	−23·5	−40·4
87	? Huntley and Tomintoul.	−10·8	−18·8	−40·4
51	Clackmannan ...	− 7·5	−25·8	−40·8
53	Fife, S. coast... ...	− 9·5	−21·9	−41
82	Inner Buchan ...	− 7	−27	−41·1
86	Lower Banff	− 8·7	−23·8	−41·2
61	Grangemouth ...	− 8·1	−25·3	−41·6
43	Eastlothian	− 7·1	−27·4	−42

		Index of Nigrescence, hair.	Index of Nigrescence, eyes.	Compound index.
89	Nairn...	− 9·6	−23·2	−42·5
73	Brechin, etc.	− 7	−28·5	−42·5
52	Dunfermline	−10·3	−22·9	−43·5
40	Selkirkshire	−11·6	−20·9	−44·1
59	Stirlingshire, Menteith, Strathallan	− 5·6	−33·2	−44·4
91	Strathspey	− 7·6	−29·2	−44·4
93, 94	Beauly and L. Ness, etc.	− 4·2	−36·1	−44·5
36	Nithsdale	− 8·5	−27·7	−44·8
28	S. Cunningham ...	− 8·3	−28·2	−44·9
83	Buchan, littoral ...	− 7·9	−29·3	−45·2
37	Annandale, etc. ...	−10·1	−25·2	−45·5
90	Moray, lowland ...	− 7·7	−30·4	−45·8
26	Kyle	−10·9	−24·9	−46·7
110	Shetland	−10·7	−26·8	−48·2
109	Orkney	− 8·9	−30·3	−48·2
88	Moray, littoral ...	−12·1	−24·5	−48·8
	Midlothian	−11·8	−26·3	−49·9
	Strathdon	−10·1	−31	−51·2
38	W. Roxburgh ...	−13·4	−24·9	−51·7
23, 30	N. Cunningham ...	−10·1	−31·9	−52·2
2	E. Lanark	−16	−21·9	−54
42	Berwickshire... ...	−12·2	−30·3	−54·8
8	No. 8	−11·4	−33·8	−56·7
49	S. Linlithgow ...	−14·7	−29·6	−59·1



A LAST CONTRIBUTION TO SCOTTISH ETHNOLOGY.

THE EUROPEAN POPULATION OF THE UNITED STATES.

The Huxley Memorial Lecture for 1908.

By William Z. Ripley, Ph.D., Professor of Economics in Harvard University.

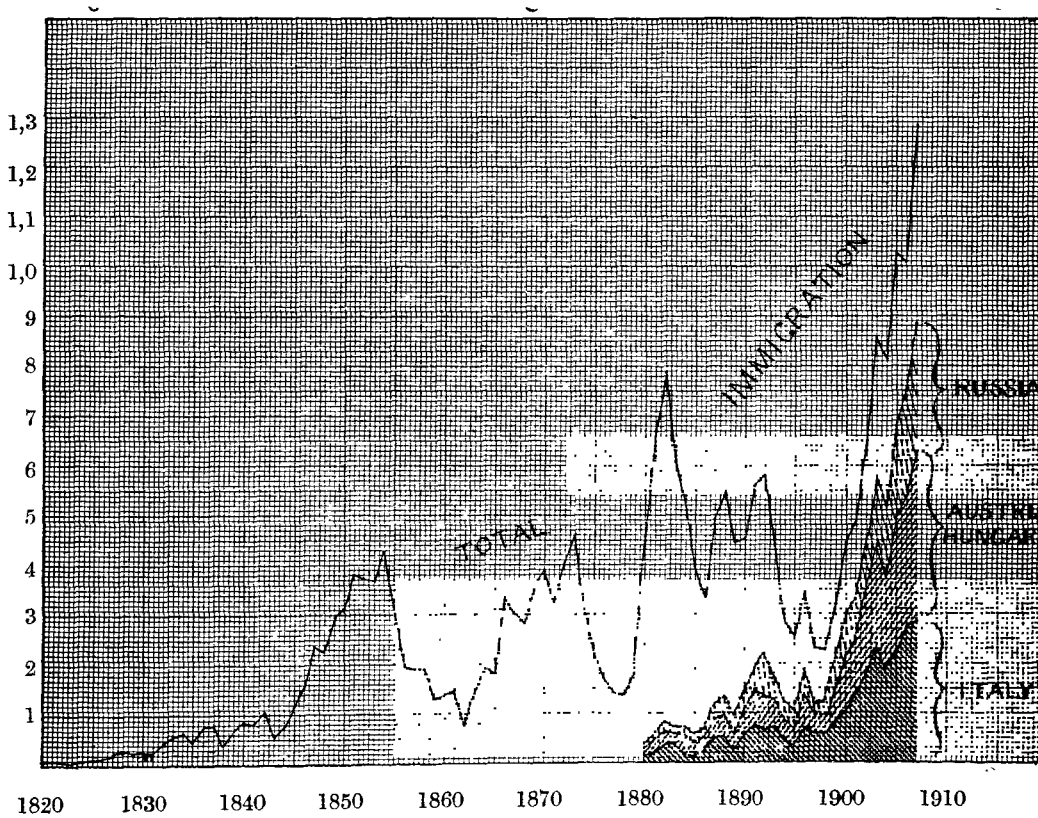
The population of Europe may, in a rough way, be divided into an East and a West. The contrast between the two may be best illustrated perhaps in geological terms. Everywhere these populations have been laid down originally in more or less distinct strata. In the Balkan States and Austria-Hungary this stratification is recent and still distinct; while in Western Europe the several layers have become metamorphosed by the fusing heat of nationality and the pressure of civilization But in both instances these populations are what the geologist would term sedimentary. In attempting a description of the racial problems of the United States, your attention is invited to an entirely distinct formation which, in continuation of our geological figure, may best be characterized by the term *eruptive.* We have to do not with the slow processes of growth by deposit or accretion: but with violent and volcanic dislocation. We are called upon to traverse a lava field of population, suddenly cast forth from Europe and spread indiscriminately over a new continent. In Europe the populations have grown up from the soil. They are still imbedded in it, a part of it. They are the product of their immediate environments; dark in the southern half, blonde at the north, stunted where the conditions are harsh, well developed where the land is fat. Even as between city and country, conditions have been so long settled that one may trace the results in the physical traits of the inhabitants. It was my endeavour in the *Races of Europe* to describe these conditions in detail. But in America the people, one may almost say, have dropped from the sky. They are in the land but not yet an integral part of it. The population product is artificial and exotic. It is as yet unrelated to its physical environment. A human phenomenon unique in the history of the world is the result.

In the description of these conditions, two great difficulties are at once encountered. One is the recency of the phenomenon; the other the paucity of precise physical data. As the first immigration to America on a large scale is scarcely more than half a century old, and in its more startling and violent aspects has lasted only half a generation, time enough has not as yet elapsed to permit a working out of Nature's laws. What evidences have we as to the effect of the new environment upon the transplanted peoples? It is amusing to read in the older

books on ethnology, and even in the files of this learned body, of the undoubted effect of the American climate upon Europeans in tending to produce the black wiry hair, the bronze skin and the aquiline features of the American Indian. Such conclusions are, of course, now understood to be a product, not of climate but of vivid imagination, somewhat over-excited, perhaps, by Buckle's *History of Civilization.* Time is needed, not only to show the effect of the physical environment, but also to demonstrate the laws of inheritance which are certain to emerge from so heterogeneous a mix-up of all the nations of the earth. Almost everything in fact lies in the womb of the future. We must be content at this time, rather to indulge in speculation and prophecy, than to revel in the more positive delights of somatological statistics. This is the field in which a great generalizing intellect like Huxley's would have been at its best.

The second difficulty in the study of racial conditions in the United States is the lack of precise physical data. This may be ascribed in large measure to the overwhelming insistency and importance of other allied concerns. This ethnic phenomenon, tremendous and important as it is for pure science, is for the moment overshadowed by others, social and political. The attention of students is compelled by the urgency of the problems presented by the affairs of men, rather than by their physical persons. Questions of living wages, of overcrowding of population in the great cities, of public health, of moral chaos, of political demoralization, are demanding immediate solution at the hands of science. And then again, in the purely anthropological field, there are the other inviting paths of study afforded by the presence of the negro and the disappearance of the aboriginal Indians. Both of these should be of absorbing interest to specialists, the former unfortunately, much neglected; but the latter, the study of the Indian, of immediate concern because whatever is to be done must be done at once. The day will indeed come when science will awake to the opportunities presented by the ethnic composition of the present white population of the United States; but that day is not yet here. And then, finally, it should be borne in mind by way of excuse for the rather vague and general character of this address, that the United States lacks certain institutions, which have greatly facilitated the anthropological study of Europe. We have no great standing armies to be recruited year by year from all sorts and conditions of men. All military service is voluntary and for hire. The only data of this sort comes to us from the time of the Civil War. Moreover, still another supply of material is rendered difficult of approach by reason of the attitude of our people toward anything savouring of government paternalism. An attempt at a physical census of the school children of New York, like Virchow's great investigation in Germany, would probably lead to a violent outbreak of yellow journalism concerning the property rights of the individual in his offspring—an uproar which might even disturb the courts and the legislatures. Private initiative with the exercise of the greatest tact and diplomacy must alone be relied upon. For instance, a difficult and yet inviting field of study for the physical anthropologist is afforded by our mountaineers in Kentucky and Tennessee. A Simon-pure Anglo-Saxon

stock is here isolated over a large area. Anticipating some years ago a vacation trip into these wilds, I took counsel as to modes of approach for physical measurements upon this rather inflammable human material, wherein blood revenge and the clan feud are still customary. This population has always enjoyed the proud distinction of being the tallest in the United States. By enlisting rivalry in a wholesale contest over the relative tallness of the men of Tennessee or Kentucky, I was told that one might, indeed, hope to fill one's saddle bags with statistics without endangering one's life in the attempt.



[In the figures at the side five "0's" have been omitted: thus 1,3 = 1,300,000.]

IMMIGRATION TO THE UNITED STATES, 1820–1907.

Judged solely from the standpoint of numbers the phenomenon of American immigration is stupendous. We have become so accustomed to it in the United States that we often lose sight of its numerical magnitude. About 25,000,000 people have come to the United States from all over Europe since 1820. This is about equal to the entire population of the United Kingdom only 50 years ago, at the time of our Civil War. It is, again, more than the population of all Italy in the time of Garibaldi Otherwise stated, this army of men would populate, as it stands to-day, all that most densely settled section of the United States north of Maryland and east of the Great Lakes; all New England, New York, New Jersey, and Pennsylvania in fact. This horde of immigrants has mainly come since the

Irish potato famine of the middle of the last century. The rapid increase year by year is shown by the accompanying diagram. It has taken the form, not of a steady growth but of an intermittent flow. First came the people of the British Isles after the downfall of Napoleon, from 2,000 in 1815 to 35,000 in 1819. Thereafter the numbers are about 75,000 yearly until the Irish famine, when 368,000 immigrants from the British Isles landed in 1852. To the English succeeded the Germans, largely moved at first by the political events of 1848. By 1854, 1,500,000 Teutons, mainly from northern Germany, had settled in America. So many were there, that ambitious plans for the foundation of a German state in the new country were actually set on foot. The later German immigrants were recruited largely from the Rhine Provinces and have settled further to the north-west in Wisconsin and Iowa; the earliest wave having come from northern Germany to Ohio, Indiana, Illinois and Missouri. The Swedes began to come after the Civil War. Their immigration culminated in 1882 with the influx of about 50,000 in that year. More recent still are the Italians, beginning with a modest 20,000 in 1876, rising to over 200,000 arrivals in 1888 and constituting an army of 300,000 in the single year of 1907; and accompanying the Italian, has come the great horde of Slavs, Huns and Jews. Wave has followed wave, each higher than the last; the ebb and flow being dependent upon economic conditions in large measure. It is the last great wave shown by our diagram which has most alarmed us in America. This gathered force on the revival of prosperity about 1897; but it did not assume full measure until 1900. Since that year, over 6,000,000 people have landed on our shores, one quarter of all the total immigration since the beginning. The newcomers of these eight years alone would repopulate all the five older New England states as they stand to-day; or if properly disseminated over the newer parts of the country, they would serve to populate no less than 19 states of the Union as they stand. The new comers of the last eight years could, if suitably seated, elect 38 out of the present 92 Senators of the United States. Do you wonder that thoughtful political students stand somewhat aghast? In the last of these eight years—1907—there were 1,250,000 arrivals; sufficient to entirely populate both New Hampshire and Maine, two of our oldest states with an aggregate territory approximately equal to Ireland and Wales. The arrivals of this one year would found a state with more inhabitants than any 21 of our other existing commonwealths. Fortunately, the commercial depression of 1908 has for the moment put a stop to this inflow. Some considerable emigration back to Europe has in fact ensued. But this can be nothing more than a breathing space. On the resumption of prosperity the tide will rise higher than before. Each immigrant, staying or returning, will influence his friends, his entire village; and so it will be until an economic equilibrium has been finally established between one continent where labour is dearer than land, and the other where land is worth more than labour.

It is not alone the rapid increase in our immigration which merits attention. It is also the radical change in its character, in the source from whence it comes,

Whereas until about 20 years ago our immigrants were drawn from the Anglo-Saxon or Teutonic populations of north-western Europe; they have swarmed over here in rapidly growing proportions since that time from Mediterranean, Slavic and Oriental sources. A quarter of a century ago, two-thirds of our immigration was truly Teutonic or Anglo-Saxon in origin. At the present time less than one-sixth comes from this source. The British Isles, Germany, Scandinavia and Canada unitedly sent us 90 per cent. of our immigrants in the decade to 1870; 82·8 per cent. in 1870–80; 75·6 per cent. in 1880–90; and only 41·8 per cent. in 1890–1900. Since then, the proportion has been very much smaller still. Germany used to contribute one-third of our new-comers. In 1907 it sent barely one-seventh. On the other hand, Russia, Austria-Hungary and Italy, which produced about one per cent. of the total in 1860–70, jointly contributed 50·1 per cent. in 1890–1900. The growth of this contingent is graphically shown by the preceding diagram. I have been at some pains to reclassify the immigration for 1907, in conformity with the racial groupings of the *Races of Europe,* disregarding that is to say, mere linguistic affiliations and dividing on the basis of physical types. The total of about 1,250,000 arrivals was distributed as follows:—

330,000	Mediterranean Race	...	...	one-quarter.
194,000	Alpine „	...	...	one-sixth.
330,000	Slavic „	...	...	one-quarter.
194,000	Teutonic „	...	...	one-sixth.
146,000	Jewish (mainly Russian)	...	...	one-eighth.

In this year, 330,000 South Italians take the place of the 250,000 Germans who came in 1882 when the Teutonic immigration was at its flood. One and one-half million Italians have come since 1900; over 1,000,000 Russians; and 1,500,000 natives of Austria-Hungary. We have even tapped the political sinks of Europe, and are now drawing large numbers of Greeks, Armenians and Syrians. No people is too mean or lowly to seek an asylum on our shores.

The net result of this immigration has been to produce a congeries of human beings, unparalleled for ethnic diversity anywhere else on the face of the earth. The most complex populations of Europe, such as those of the British Isles, Northern France, or even the Balkan States seem ethnically pure by contrast. In some of these places the soothing hand of time has softened the racial contrasts. Of course, there are certain water holes like Gibraltar, Singapore or Hong Kong to which every type of human animal is attracted; and a notably mongrel population is the result. But for ethnic diversity on a large scale, the United States is certainly unique. Our people have been diverse in origin from the start to a greater degree than is ordinarily supposed. Virginia and New England, to be sure, were for a long time Anglo-Saxon undefiled; but in the other colonies there was much intermixture, such as the German in Pennsylvania, the Swedish along the Delaware, the Dutch in New York, and the Highland Scotch and Huguenot in the Carolinas. Little centres of foreign inoculation in the early days are discoverable everywhere. On a vacation trip recently in the extreme north-eastern

corner of Pennsylvania, my wife and a friend remarked the frequency of French names of persons, and then of villages, of French physical types and of French cookery. On inquiry it turned out that many settlements had been made by French, who emigrated after the battle of Waterloo. Many such colonies could be named, were there time, such as the Dutch along the Lake shore of western Michigan, the Germans in Texas, and the Swiss villages in Wisconsin, none of them recent but constituting long established and permanent elements in the population. Concerning New York city, Father Jognes states that the Director-General told him of 18 languages spoken there in 1644. For the entire thirteen colonies at the time of the Revolution, we have it on good authority that one-fifth of the population could not speak English, and that one-half at least was not Anglo-Saxon by descent. Upon such a stock, it is little wonder that the grafting of these 25,000,000 immigrants should produce an extraordinary human product. For over half a century more than one-seventh of our aggregate population has been of actually foreign birth. This proportion of actual foreigners of all sorts varies greatly as between the different states. In Minnesota and New York, for example, at the present time, the foreign born, as we denote them statistically, constitute about one-quarter of the whole; in Massachusetts, the proportion is about one-third and occasionally, as in North Dakota in 1890, it approaches one-half (42 per cent.). It is in the cities, of course, where this proportion of actual foreigners rises highest. In New York city there are over 2,000,000 people born in Europe who have come there hoping to better their lots in life. Boston has an even higher proportion of actual foreigners; but the relatively larger numbers of English-speaking ones, such as the Irish, renders the phenomenon less striking. Nevertheless, within a few blocks, in the foreign colony, there are no less than 25 distinct nationalities. In this entire district, once the fashionable quarter of Boston, out of 28,000 inhabitants, only 1,500 in 1895 had parents born in the United States.

The full measure of our ethnic diversity is revealed only when one aggregates the actually foreign born with their children born in America—totalizing, as we call it, the foreign born and the native born of foreign parentage. This group thus includes only the first generation of American descent. Oftentimes even the second generation may remain ethnically as undefiled as the first; but our positive statistical data carries us no further. This group of foreign born and their children constitutes to-day upwards of one-third of our total population; and, by excluding the negroes, it equals almost one-half (46 per cent.) of the white population. This is for the country as a whole. Considered by states or cities, the proportion is of course much higher. Baltimore, one of our purest American cities, had 40 per cent. of foreigners with their children in 1900. In Boston the proportion leaps to 70 per cent., in New York to 80 per cent., and reaches a maximum in Milwaukee with 86 per cent. thus constituted. Picture to yourselves if you please, an English city of the size of Edinburgh with only about one, person in eight English by descent, by only a modest two generations! To this condition must be added the probability that not over one-half of that remnant of

a rear guard can trace its descent on American soil as far back as the third generation. Were we to eliminate these foreigners and their children from our city populations, it has been estimated that Chicago, with to-day a population of over 2,000,000, would dwindle to a city of not much over 100,000 inhabitants.

One may select great industries practically given over to foreigners. Over 90 per cent. of the tailors of New York city are Jews, mainly Russian and Polish. In Massachusetts, the centre of our staple cotton manufacture, out of 98,000 employees one finds that only 3,900, or about 4 per cent., are native born Americans, and most of those are of Irish or Scotch-Irish descent two generations back. All of our day labour, once Irish, is now Italian; our fruit vendors once Italian, are now becoming Greek; and our coal mines once manned by peoples from the British Isles are now worked by Hungarians, Poles, Slavaks or Finns. A special study of the linguistic conditions in Chicago well illustrates our racial heterogeneity. Among the people of that great city,—the third in size in the United States,—fourteen languages are spoken by groups of not less than 10,000 persons each. Newspapers are regularly published in ten languages; and church services are conducted in twenty different tongues. Measured by the size of its foreign linguistic colonies, Chicago is the second Bohemian city in the world, the third Swedish, the fourth Polish, and the fifth German (New York being the fourth). I know of one large factory in Chicago employing 4,200 hands, representing 24 distinct nationalities. Rules of the establishment are regularly printed in eight languages. In one block in New York where friends of mine are engaged in college settlement work there are 1,400 people of 20 distinct nationalities. There are more than two thirds as many native born Irish in Boston as in the capital city, Dublin. With their children, mainly of pure Irish blood, they make Boston indubitably the leading Irish city in the world. New York is a larger Italian city to-day than Rome, having 500,000 Italian colonists. It contains no less than 800,000 Jews, mainly from Russia. Thus it is easily the foremost Jewish city in the world. Pittsburg, the centre of our iron and steel industry is another Tower of Babel. It is said to contain more of that out-of-the-way people, the Servians, than the capital of that country itself.

Such being the ethnic diversity of our population, the primary and fundamental physical question, is as to whether these racial groups are to coalesce to form ultimately a more or less uniform American type: or whether they are to continue their separate existences within the confines of one political unit. Will the progress of time bring about intermixture of these diverse types; or will they remain separate, distinct and perhaps discordant elements for an indefinite period, like the warring nationalities of Austria-Hungary and the Balkan States. We may perhaps best seek an answer, by a serial discussion, first, of those factors which tend to favour intermixture; and thereafter of those forces which operate to prevent it.

The extreme mobility of our American population, ever on the increase, is evidently a solvent force from which powerful results may well be expected in the course of time. This is rendered peculiarly patent by the usual concomitant, that

this mobility is largely confined to the male sex. The census of 1900 showed that nearly one-quarter of our native-born whites were then living in other states than those of their birth. Kansas and Oklahoma are probably the most extreme examples of such colonization. Almost their entire population has been transplanted, often many times, moving by stages from state to state. The last census showed that only 53 per cent. of the population of the former state were natives of Kansas. An analysis of the membership of its state legislature some years ago revealed that only 9 per cent. were born within the confines of the state. Even in the staid commonwealth of Iowa, only about one-third of the American-born population was native to the state. This restlessness has always been characteristic of our original stock. Even our farmers, in other countries more or less yoked to the soil, are still on the move, travelling first westward, and now southward, seeking new outlets for their activities. And from this rural class also is drawn the steady inflow to the great cities and industrial centres, which is so much a feature of our time. Thus has rural New England been depopulated, leaving almost whole counties in which the inhabitants to-day number less than in 1800. In this process during the ten years prior to 1890, the little state of Vermont parted with more than one-half of her population by emigration. Maine sent forth one-third. And other states as far south as Virginia and Ohio, parted with almost as many. It has been estimated even of the city of Boston, an industrial centre of over half-a-million inhabitants, that the old, native-born Bostonians of twenty years ago number less than 64,000. At first our immigrants do not feel the full measure of this restlessness. The great inflowing streams of human beings at New York, Boston and Philadelphia, like rivers reaching the ocean, tend to deposit their sediment at once on touching our shores. At the outset these immigrants are immobile elements, congesting the slums of the great cities. But with the men particularly, with the exception of the Jews perhaps, the end is not there. As among the Italians, Greeks, and Scandinavians, they are apt to return to the fatherland after a while; and then to come back again, this time with a wider appreciation of their opportunities; so that when they return, they scatter far more widely. Instead of bunching near the steamship landing stages, they range afield. With their children this mobility may become even more marked. Cheap railroad fares, the demand for harvest labour in the west, the contract labour on railways and irrigation works, all tend to stimulate this movement. It was this mobility of our older Anglo-Saxon population which kept the nation unified over a vast and highly varied area; and it will be such mobility, engendered by the exigencies of our changing economic life, which will help to stir up and mix together the various ingredients of our population.

A second influence, making for racial intermixture, is the ever-present inequality of the sexes among these foreigners. This is most apparent when they first arrive, about 70 per cent. of them being males. Few nationalities now-a-days bring whole families, as did the Anglo-Saxon and German people a generation ago. The Bohemians, indeed, seem to do so; as well as many of those immigrants practically

driven out from Europe by political persecution. Thus, in 1905, Russia sent 50,000 women folk,—more than came from England, Sweden, and Germany combined; and Austria-Hungary sent 78,000, or thrice the number of women contributed by England, Ireland, and Germany. But of the main body, the large majority are men. This vanguard of males tends generally to be followed by more women later, after an initial period of trial and exploration. Thus, among the Italians the proportion of men to women once six to one, has now fallen to about three to one. Having established themselves in America, what are these men to do for wives? In all classes, matrimony, early or late, is man's natural estate. They may write home or go home and find brides among their own people, or they may seek their wives in America. This probably, the majority of them do; and, of course, most of these naturally prefer to marry within their own colony of fellow countrymen. But suppose, in the first place, this colony is predominantly men, or constitutes a small outpost, isolated among a population alien or semi-alien to them. An odd consequence of the ambition to rise of these foreign-born men, tending inevitably to break down racial barriers, is that they covet an American-born wife. The woman always is the conservative element in society, and tends to cling to the old ways long after they have been discarded by the men. The result is, that in intermixture of various peoples, it is more commonly the man who marries up in the social scale. Being the active agent, he inclines to choose from a social station higher than his own. There were about 15,000,000 people in 1900 born in the United States of foreign-born parents, wholly or in part. About 5,000,000 of these had one parent foreign-born and one native-born; that is to say with one parent drawn from the second generation of the immigrant stream. And in two-thirds of these mixed marriages, it was the father who was foreign-born, the mother being native-born. This law I have verified by many concrete examples and by some additional statistical data. It is the same law, which, contrary to general belief, leads most of the infrequent marriages across the colour line to take the form of a negro husband and a white wife. For certain states, as in Michigan, the registration statistics are reliable, and here again show that over two-thirds of the mixed marriages have foreign-born grooms and native-born brides. At the United Hebrew Charities in New York City, many thousand cases of destitution among foreign-born women arise from the desertion of the wife, with her old-fashioned European ways, by the husband who has out-distanced her in adaptation to the new life. This law is well borne out in the growing intermarriage between the Irish and the Italians. The Irish, from their longer residence in America, are obviously of a higher social grade. The ambitious young Italian fruit vendor or the Jewish merchant who has "made good," being denied a wife among his own people, there being too few to go around, then woos and wins an Hibernian bride. Religion in this instance is no bar, both being Catholics. In a similar fashion, in New England where Germans are scarce and Irish abound, it is the German man who usually marries up into an Irish family. The same thing seems to be true even in New York, where the German colony is very large. When intermarriage between the two people occurs, six times

out of seven it is the Irish woman who bears the children. In this connection, the important *rôle* played in ethnic intermixture by the Irish women deserves mention. One reason is surely her relative abundance. Thus in our Boston foreign colony with every other nationality largely represented by men, there is a surplus of 1,500 Irish females. But a second reason also, is the superior adaptability and comradeship of the Irish woman, together with her democratic ways and lack of spirit of caste. Irish, or Irish-American, womanhood bids fair to be a potent physical mediator between the other peoples of the earth. One may picture this process going further, especially in those parts of the country where the more ambitious native-born males have emigrated to the West or to the large cities. The incoming foreigners, steadily working upward in the economic and social scale, and the stranded, downward trending American families, perhaps themselves of Irish or Scotch-Irish descent, may in time meet on an even plane.

The subtle effects of change of environment, religious, linguistic, political and social is another powerful influence in breaking down ethnic barriers. The spirit of the new surroundings in fact is so different as to prove too powerfully disintegrating an influence. In the moral and religious fields this is plainly noticeable, and often pathetic in its results. The religious bonds are often entirely snapped. This is discernible among the Jews everywhere. As one observer put it to me, "Religion is supplanted by socialism and the yellow journal." Large numbers, notably of the young men, break loose entirely and become agnostics or freethinkers. The Bohemians are notorious in this regard. This is accompanied by a breakdown of patriarchal authority in the family; and with it, in the close contacts of city life, the barriers of religion against intermarriage visibly weaken. Differences of language are also less powerful dividing influences than one would think, especially in the great cities. One not infrequently hears of bride and groom not being on speaking terms with one another. And one of my friends tells me of a pathetic instance of a Czech-German marriage, in which the man painfully acquired some knowledge of German but in later life forgot it almost entirely; so that in the end the two old people were driven to the use of signs for daily intercourse.

Despite the best efforts of parents to keep alive an acquaintance with the mother tongue, it tends to disappear in the second generation. To be sure at the present time, no less than about one in every sixteen of our entire population, according to the Census of 1900, cannot even speak the English language. Such ignorance of English of course tends more strongly to persist in isolated rural communities. The Pennsylvania Dutch who still after over 200 years of residence in America can say "Ich habe mein Haus ge-*painted* and ge-*whitewashed*" are a case in point. It is averred that in some of the Polish colonies in Texas, even the negroes speak Polish; as Swedish is used in Minnesota and the Dakotas, German in the long-standing Swiss colonies in Wisconsin, and French among the French-Canadians in New England. On Cape Cod in Massachusetts, many rural schools have a separate room for the non-English speaking pupils. But the desire, and

even the economic necessity, of learning English is overwhelming in its potency. In the transitional period of acquiring English, the dependence of the parents upon the children entirely reverses the customary relationship. Even the young children, having learned English in the public schools, are indispensable go-betweens for all intercourse with the public. As a result they relegate the parents to a subordinate position before the world. Census enumerators and college settlement workers agree in citing instances where the old people are commanded to "Shut up," and not interfere in official conversations; or in the familiar admonition "not to speak until spoken to." The decadence of family authority and coherence due to this cause is indubitable. Thus it comes about that already in the second generation the barriers of language and religion against ethnic intermixture are everywhere breaking down. The English tongue readily comes into service; but unfortunately in respect of religion, the traditional props and safeguards are knocked from under, without as yet, in too many instances, suitable substitutes of any sort being provided. From this fact arises the insistence of the problem of criminality among the descendants of our foreign-born. This is a topic of vital importance, but somewhat foreign to the particular subject in hand.

Among the influences tending to hinder ethnic intermixture, there remains to be mentioned the effect of concentration or segregation of the immigrants in compact colonies, which remain to all intents and purposes as truly outposts of the mother civilization as were Carthage, or Treves. This phenomenon of concentration of our foreign-born, not only in the large cities but in the north-eastern quarter of the United States, has become increasingly noticeable with the descending scale of nationality among the more recent immigrants. The Teutonic peoples have scattered widely, taking up land in the West and thus populating the wilderness But the Mediterranean, Slavic and Oriental people heap up in the great cities; and with the exception of Chicago, seldom penetrate far inland. Literally four-fifths of all our foreign-born citizens now abide in the twelve principal cities of the country, and these are mainly in the East. We thought it a menace that in 1890, 40 per cent. of our immigrants were to be found in the North Atlantic states; but in the decade to 1900, four-fifths of the new-comers settled there; the result being that in the latter year, not 40 but actually 80 per cent. of the foreign-born of the United States resided in this already densely populated area. Four-fifths of the foreign-born of New York State, and two-thirds of those in Illinois are now packed into the large towns. To be sure this phenomenon of urban congestion is not confined to the foreigner. Within a 19-mile radius of the City Hall in New York, dwells 51 per cent. of the population of the great state of New York together with 58 per cent. of the population of the adjoining state of New Jersey. But its results are more serious among the foreign-born, heaped up as they are in the slums and purlieus. On the other hand, in the middle and far West, the proportion of actual foreign-born has been steadily declining since 1890. Cities like Cincinnati or Milwaukee, once largely German, have now become Americanized. In the second and third generations, not recruited as actively as before by constant

arrivals, the parent stock has become visibly diluted. And in the rural north-west, as the older Scandinavians die off, their places are being supplied by their American-born descendants; but with admixture of raw recruits from the old countries to a lesser degree than before.

This phenomenon of concentration obviously tends to perpetuate the survival of racial stocks in purity. In a dense colony of 10,000 or 50,000 Italians or Russian Jews, there need be little contact with other nationalities. The English language may intrude and the old-established religion may lose its potency; but as far as physical contacts are concerned, the colony may be self-sufficient. Professor Buck found in the Czech colony in Chicago that while 48,000 children had both parents Bohemian, there were only 799 who had only one parent of that nationality. Had there been only a small colony, the number of mixed marriages would have greatly increased. Thus the Irish in New York, according to the Census of 1885, almost overwhelmingly took Irish brides to wife; but in Baltimore at the same time, where the Irish colony was small, about one in eight married native-born wives. Such facts illustrate the force of the influences to be overcome in the process of racial intermixture. Call it what you please, "consciousness of kind," or "race instinct," there will always be, as among animals, a disposition of distinct types to keep separate and apart. Among men, however, this seldom assumes concrete form in respect of physical type; although in *The Races of Europe* I have sought to demonstrate its results among the Basques and the Jews. Marriage elsewhere appears to be rather a matter of social concern. There is no physical antipathy between different peoples. Oftentimes the attraction of a contrasted physical type is freely acknowledged. The barrier to intermarriage between ethnic groups is more often based upon differences in economic status. The Italian "Dago" is looked down upon by the Irish; as in turn the Irishman used to be characterized by the Americans as a "Mick," or a "Paddy." Any such social distinctions constitute serious handicaps in the matrimonial race; but on the other hand, as they are in consequence largely artificial, they tend to disappear with the demonstration of economic and social efficiency.

Heretofore, our attention has been directed to a discussion of the influences making for or against a physical merger of these divers peoples. It may now be proper to inquire how much of this intermixture there really is. Does it afford evidence of tendencies at work, which may in time achieve momentous results? The first cursory view of the field would lead one to deny that the phenomenon was yet of importance. The potency of the forces tending to restrict intermarriage seems too great. But on the other hand, from such concrete statistical data as are obtainable, it appears as if a fair beginning had already been made, considering the recency of the phenomenon. The general data from the Federal Census are valueless in this connection. Although they indicate much intermarriage of the foreign-born with the native-born of foreign parentage, the overwhelming preponderance of this is, of course, confined to the same ethnic group. The immigrant Russian Jew, or young Italian, is merely mating with another of the same people, born in America

of parents who were direct immigrants. The bride in such a case is as truly Jewish or Italian by blood as the groom, although her social status and economic condition may be appreciably higher. But evidence of true intermixture across ethnic lines is not entirely lacking. No less than 56,000 persons are enumerated in the Federal Census as being of mixed Irish and German parentage, for example; and of these, 13,400 were from New York State alone. German-English intermarriages are about as frequent, numbering 47,600. Irish and French-Canadian marriages numbered 12,300, according to the same authority. Three times out of five, it is the French-Canadian man who aspires to an Irish bride. In the north-west the Irish and Swedes are said to be evincing a growing fondness for one another. For the newer nationalities, the numbers are, of course, smaller.

Some idea of the prevalence of mixed marriages is afforded by the specialized census data of 1900. Take one nationality, the Italians for example. There were 484,207, in all, in the United States. Of these nearly one-half or 218,810 had both parents Italian. Marriages of Italian mothers and American-born fathers produced 2,747; while, conformably to the law already set forth, no less than 23,076, had Italian fathers and native-born mothers. There still remained 12,523 with Italian fathers and mothers of some other non-American nationality, and 3,911 with Italian mothers and fathers neither American or Italian born. Thus of the 484,000 Italian contingent, nearly one-tenth proved to be of mixed descent. For the City of Boston, special inquiry showed that 236 Italians in a colony of 7,900 were of mixed parentage, with predominantly Irish tendencies.

Mixed marriages are, of course, relatively infrequent; but at all events, as in these cases, constitute a beginning. Sometimes they occur oftener, especially in the great centres of population where all are herded together in close order. Thus in a census made in New York of the oldest part of the city south of Wall and Pine Streets to the Battery by the Federation of Churches, out of 307 families completely canvassed, it appeared that 49 were characterized by mixed marriages. This proportion of one in six is certainly too high for an average; but it is nearly equalled by the rather unreliable data afforded by the mortality statistics of Old New York for 1906, showing the parentage of descendants. This gave a proportion of one to eight as of mixed descent. How many of those called mixed were only offspring of unions of first and second generations of the same people is not, however, made clear. Some good authorities, such as Dr. Maurice Fischberg, do not hesitate to affirm that even for the Jews, as a people, there is far more intermarriage with the Gentile population, than is commonly supposed. In Boston, the most frequent form of intermarriage perhaps is between the Jewish men and Irish or Irish-American women.

A few general observations upon the subject of racial intermixture may now be permitted. Is the result likely to be a superior or an inferior type? Will the future American two hundred years hence, be better or worse, as a physical being, because of his mongrel origin? The greatest confusion of thinking is permitted upon this topic. Evidence to support both sides of the argument is to be had for the seeking.

For the continent of Europe, it is indubitable that the highly mixed populations of the British Isles, of Northern France, of the valley of the Po and of southern Germany, are superior in many ways to those of outlying or inaccessible regions where greater purity of type prevails. But the mere statement of these facts carries proof of the partial weakness of the reasoning. Why should not the people of the British Isles, the Isle de France and of the Po valley be the best in Europe? Have they not enjoyed every advantage which a salubrity of climate and fertility of soil can afford? Was it not, indeed, the very existence of these advantages which rendered these garden spots of the earth, Meccas of pilgrimage? Viewed in a still larger way, is it not indeed the very beneficence of Nature in these regards, which has induced or permitted a higher evolution of the human species in Europe, than in any of the other continents. The races certainly began even. Why are the results for Europe as a whole so superior to-day? Alfred Russel Wallace, I am sure, would have been ready with a cogent reason. What right have we to dissociate these concomitantly operative influences of race and environment, and ascribe the superiority of physical type to the effect of intermixture alone? Yet on the other hand, does not the whole evolutionary hypothesis compel us to accept some such favourable conclusion? What leads to the survival of the fittest, unless there be the opportunity for variation of type, from which effective choice may result. And yet most students of biology agree, I take it, in the belief that the crossing of types must not be too violently extreme. Nature proceeds in her work by short and easy stages. At this point, the opportunity for the students of heredity like Galton, Pearson and their fellow workers appears. What, for instance, is the order of transmission of physical traits as between the two parents in any union? We have seen how unevenly assorted much of the intermixture in the United States tends to be. If as between the Irish and the Italians who are palpably evincing a tendency to mate together, it is commonly the Italian male who seeks the Irish wife; and if, as Pearson avers, inheritance in a line through the same sex is pre-potent over inheritance from the other sex; what interesting possibilities of hereditary physical differences may result.

An interesting query suggested by the results of scientific breeding and the study of inheritance among lower forms of animal life is this; what chance is there that out of this forcible dislocation and abnormal intermixture of all the peoples of the civilized world, there may emerge a physical type tending to revert to an ancestral one, older than any of the present European varieties? The law seems to be well supported elsewhere, that crossing between highly evolved varieties or types, tends to cause reversion to the original stock; and the greater the divergence between the crossed varieties, the more powerful does the reversionary tendency become. Most of us are familiar with the illustrations; such as the reversion among sheep to the primary dark type; and the emergence of the old wild blue-rock pigeon from blending of the fan-tail and pouter varieties. The same law is borne out in the vegetable world, the facts being well known to fruit growers and horticulturists. The more recently acquired character-

istics, especially those which are less fundamentally useful, are sloughed off; and the ancestral features, common to all varieties, emerge from dormancy into prominence. Issue need not be raised, as set forth by Dr. G. A. Reid, whether the result of cross-breeding is always in favour of reversion, and never of progression; but interesting possibilities linked up with this law may be suggested. All students of natural science have accepted the primary and proven tenets of the evolutionary hypothesis—or rather let us say, of the law of evolution. And all alike acknowledge the subjection of the human species to the operation of the same great laws applicable to all other forms of life. It would have been profoundly suggestive to have heard from Huxley on a theme like this. We are familiar in certain isolated spots in Europe, the Dordogne in France for example, with the persistence of certain physical types without change from prehistoric times. The modern peasant is the proven direct descendant of the man of the stone age and the mammoth. But here is another mode of access to that primitive type, or even an older, running back to a time before the separation of European varieties of men began. Thus, to be more specific, there can be little doubt that the primitive type of European was brunette, probably with black eyes and hair and a swarthy skin. Teutonic blondness is certainly an acquired trait, not very recent judged by historic standards, to be sure, but as certainly not old, measured by evolutionary time. What chance is there that in the unions of rufous Irish and dark Italian types, a reversion in favour of brunetteness may result. Were it not for the inflammatory character of the controversy in a gathering of anthropologists, over the relative primitiveness of the dolichocephalic and brachycephalic types in Europe, I might be tempted to go further and speculate as to the bearing of American racial intermixture upon this much-mooted question.

A relatively unimportant, yet theoretically very interesting, detail of the subject of racial intermixture is suggested in Westermarck's brilliant *History of Human Marriage.* It is a well-known statistical law, almost the world over, that there are more boys than girls born into the world. The normal ratio of births is about 105 males to 100 females. Students have long sought the reasons for this irregularity; but nothing has yet been proven conclusively. Westermarck brings together much evidence to show that this proportion of the sexes at birth is affected by the amount of in-breeding in any social group, crossing of different stocks tending to increase the percentage of female births. Thus, among the French half-breeds and mulattos in America, among mixed Jewish marriages, and in South and Central America, female births may at times even overset the difference and actually preponderate over the male births. The interest of this topic lies in the fact that it is unique among social phenomena in being, so far as we know, independent of the human will. It is the expression of what may truly be denominated natural law. Westermarck's general biological reasoning is that inasmuch as the rate of increase of any animal community is dependent upon the number of productive females, a sort of accommodation takes place in each case between the potential rate of increase of the group and its means of subsistence,

or chance of survival. More females birth at is the response of Nature to an increasingly favourable environment, or condition. In-and-in-breeding is undoubtedly injurious to the welfare of any species. As such, according to Westermarck, it is accompanied by a decline in the proportion of females born. This is the expression of Nature's disapproval of the practice; while intermixture tends, contrariwise, to produce a relative increase of the female sex. Certain it is that an imposing array of evidence can be marshalled to give colour to the hypothesis. My suggestion at this point is that, here in the racial intermixture just now beginning in the United States, and sure to assume tremendous proportions in the course of time, will be afforded an opportunity to study man in his relation to a great natural law, in a way never before rendered possible. Statistical material is at present too meagre, and vague; but one may confidently look forward to such an improvement in this regard, that an inviting field of research will be exposed to view.

The significance of the rapidly increasing immigration from Europe in recent years, is vastly enhanced by other influences in the United States. A powerful process of social selection is apparently at work among us. Racial heterogeneity, due to the direct influx of foreigners in large numbers, is aggravated by their relatively high rate of reproduction after arrival; and in many instances by their surprisingly sustained tenacity of life, greatly exceeding that of the native-born American. Relative submergence of the domestic Anglo-Saxon stock is strongly indicated for the future. "Race suicide," marked by a low and declining birth rate, as is well known, is a world-wide social phenomenon of the present day. Nor is it by any means confined solely to the so-called upper classes. It is so notably a characteristic of democratic communities, that it may be regarded as almost a direct concomitant of equality of opportunity among men. To this tendency, the United States is no exception; in fact, together with the Australian commonwealths, it affords one of the most striking illustrations of present-day social forces. Owing to the absence of reliable data, it is impossible to state what the actual birthrate of the United States as a whole may be. But for certain commonwealths the statistical information is ample and accurate. From this evidence it appears that, for those communities at least to which the European immigrant resorts in largest numbers, the birth rate is almost the lowest in the world. France and Ireland, alone among the great nations of the earth, stand lower in the scale. This relativity is shown by the following table, giving the number of births in each case per thousand of population:—

Birth Rate (approximate).

Hungary	40
Austria	37
Germany	36
Italy	35
Holland	33

England; Scotland; Norway; Denmark	30
Australia; Sweden	27
Massachusetts; Michigan	25
Connecticut; Rhode Island	24
Ireland	23
France	22
New Hampshire	20 (?)

This crude birth rate, of course, is subject to several technical corrections; and should not be taken at its full face value. Moreover, it may be unfair to generalize for the entire rural West and South, from the data for densely populated communities. And yet, as has been observed, it is in our thickly settled eastern states that the newer type of immigrant tends to settle. Consequently, it is the birth rate in these states, as compared with that of the new comer, upon which racial survival will ultimately depend.

The birth rate in the United States in the days of its Anglo-Saxon youth was one of the highest in the world. The best of authority traces the beginning of its decline to the first appearance, about 1850, of immigration on a large scale. Our great philosopher, Benjamin Franklin, estimated six children to a normal American family in his day. The average at the present time is slightly above two. For 1900, it is calculated that there are only about three-fourths as many children to potential mothers in America as there were forty years ago. For Massachusetts, were the old rate of the middle of the century sustained, there would be 15,000 more births yearly than now occur. In the course of a century the proportion of our entire population, consisting of children under the age of ten, has fallen from one-third to one-quarter. This, for the whole United States, is equivalent to the loss of about 7,000,000 children. So alarming has this phenomenon of the falling birth rate become in the Australian colonies, that in New South Wales a special governmental commission has voluminously reported upon the subject. It is estimated that there has been a decline of about one-third in the fruitfulness of the people in 15 years. New Zealand even complains of the lack of children to fill her schools. The facts concerning the stagnation, nay even the retrogression, of the population of France, are too well known to need description. But in these other countries, the problem is relatively simple, as compared with our own. Their populations are homogeneous, and, ethnically at least, are all subject to these social tendencies to the same degree. With us, the danger lies in the fact that this low and declining birth rate is primarily confined to the Anglo-Saxon contingent. The immigrant European horde, until recently at least, has continued to reproduce upon our soil with well sustained energy.

Baldly stated, the birth rate among the foreign-born in Massachusetts is about three times that of the native-born. Childless marriages are one-third less frequent. This somewhat exaggerates the contrast, because of differing conditions as to age and sex in the two classes. The difference, nevertheless, is very great. Kuczynski

has made detailed investigations as to the relative fecundity of different racial groups. The fruitfulness of English-Canadian women in Massachusetts is twice that of the Massachusetts-born; of the Germans and Scandinavians it is two-and-a-half times as great; of the French-Canadians it is thrice; and of the Portuguese four times. Even among the Irish, who are characterized now-a-days everywhere by a low birth rate, the fruitfulness of the women is fifty per cent. greater than for the Massachusetts native-born. The reasons for this relatively low fecundity of the domestic stock are, of course, much the same as in Australia and in France. But with us, it is as well the "poor white" among the New England hills or in the southern states as the town dweller, who appears content with few children or none. The foreign immigrant marries early and children continue to come until much later in life than among the native-born. It may make all the difference between an increasing or declining population whether the average age of marriage is 20 years or 29 years. The contrast between the Anglo-Saxon stock and its rivals for supremacy may be stated in another way. Whereas only about one-ninth of the married women among the French-Canadians, Irish and Germans are childless; the proportion among the American-born and the English-Canadians is as high as one in five. A century ago about two per cent. of barren marriages was the rule. Is it any wonder that serious students contemplate the racial future of Anglo-Saxon America with some concern? They have witnessed the passing of the American Indian and the buffalo. And now they query as to how long the Anglo-Saxon may be able to survive.

On the other hand, evidence is not lacking to show that in the second generation of these immigrant peoples, a sharp and considerable, nay, in some cases, a truly alarming decrease in fruitfulness occurs. The crucial time among all our new comers from Europe has always been this second generation. The old customary ties and usages have been abruptly sundered; and new associations, restraints and responsibilities have not yet been formed. Particularly is this true of the forces of family discipline and religion, as has already been observed. Until the coming of the Hun, the Italian and the Slav, at least, it has been among the second generation of foreigners in America, rather than among the raw immigrants, that criminality has been most prevalent. And it is now becoming evident that it is this second generation in which the influence of democracy and of novel opportunity makes itself apparent in the sharp decline of fecundity. In some communities, the Irish-Americans have a lower birth rate even than the native-born. Dr. Engelmann on the basis of a large practice has shown that among the St. Louis Germans, the proportion of barren marriages is almost unprecedentedly high. Corroborative, although technically inconclusive, evidence from the Registration Reports of the State of Michigan appears in the following suggestive table showing the nativity of parents and the number of children per marriage annually in each class.

German father; American-born mother ...	2·5 children.
American-born father, German mother ...	2·3 „
German father, German mother	6· „
American-born father, American-born mother	1·8 „

I have been at some pains to secure personal information concerning the foreign colonies in some of our large cities, notably New York. Dr. Maurice Fishberg for the Jews, and Dr. Antonio Stella for the Italians, both notable authorities, confirm the foregoing statements. Among the Italians particularly, the conditions are positively alarming. Peculiar social conditions influencing the birth rate, and the terrific mortality induced by overcrowding, insanitation and the unaccustomed rigors of the climate, make it doubtful whether the Italian colony in New York will even be physically self-sustaining. Thus it appears that forces are at work which may check the relatively higher rate of reproduction of the immigrants, and perhaps reduce it more nearly to the Anglo-Saxon level.

The vitality of these immigrants is surprisingly high in some instances; particularly where they attain an open-air rural life. The birth rate stands high; and the mortality remains low. Such are the ideal conditions for rapid reproduction of the species. On the other hand, where overcrowded in the slums of great cities, ignorant and poverty-stricken, the infant mortality is very high, largely offsetting, it may be, the high birth rate. The mortality rate among the Italians in New York, for instance, is said to be twice as high as in Italy. Yet some of these immigrants, such as the Scandinavians, are peculiarly hardy and enduring. Perhaps the most striking instance is that of the Jews, both Russian and Polish. According to the Census of 1890, their death rate was only one-half that of the native-born American. For three of the most crowded wards in New York City, the death rate of the Irish was 36 per 1,000; for the Germans, 22; for natives of the United States, 45; while for the Jews it was only 17 per 1,000. By actuarial computation, at these relative rates, starting at birth with two groups of 1,000 Jews and Americans respectively, the chances would be that the first half of the Americans would die within 47 years; while for the Jews this would not occur until the lapse of 71 years. Social selection at that rate would be bound to produce very positive results in a century or two.

At the outset, confession was made that it was too early as yet to draw positive conclusions as to the probable outcome of this great ethnic struggle for dominance and survival. The great heat and sweat of it is yet to come. Wherever the Anglo-Saxon has fared forth into new lands, his supremacy in his chosen field, whatever that may be, has been manfully upheld. India was never contemplated as a centre for settlement; but Anglo-Saxon law, order and civilization has prevailed. In Australia, where Nature has offered inducements for actual colonization, the Anglo-Saxon line is apparently assured of physical ascendancy. But the great domain of Canada—greater than one can conceive who has not traversed its north-western empire—is subject to the same physical danger which confronts us in the United States—actual physical submergence of the

English stock by a flood of continental European peoples. And yet, after all, is the word "danger" well considered for use in this connection? What are the English people, after all, but a highly evolved product of racial blending? To be sure, all the later crosses, the Saxons, Danes and Normans, have been of allied Teutonic origin at least. Yet encompassing these racial phenomena with the wide, sweeping vision of him in whose honour this address is rendered, dare we deny an ultimate unity of origin to all the peoples of Europe? Our feeble attempts at ethnic analysis cannot at the best reach further back than to secondary origins. And the primary physical brotherhood of all branches of the white race, nay, I will go even farther, and say of all the races of men, must be admitted on faith—not on the faith of dogma, but on the faith of scientific probability. It is only in their degree of physical and mental evolution that the races of men are different. You have your "white man's burden" to bear in India; we have ours to bear with the American negro and the Filipinos. But an even greater responsibility with us and with your Canadian fellow-citizens is that of the "Anglo-Saxon's burden":—to so nourish, uplift and inspire all these immigrant peoples of Europe, that in due course of time, even if the physical stock be inundated by the engulfing flood, the torch of Anglo-Saxon civilization and ideals, borne by our fathers from England to America, shall yet burn as bright and clear in the New World, as your fires have continued to illuminate the Old.

THE ORIGIN OF THE TURKISH CRESCENT.[1]

By Professor William Ridgeway, M.A., Sc.D., F.B.A., Litt.D., LL.D.

[With Plates XIX–XXV.]

There is no more familiar antithesis than that between the crescent and the Cross, which is ever recurring in books about the Crusades. There is also a very widespread vague belief that the crescent is a survival in Islam from the days of the Ignorance when the Moon Goddess under her various names of Ishtar, Astarte, Alilat, or Mylitta was worshipped over a large part of south-western Asia. Yet when we come to examine into the history of the crescent as a badge of Muhammadanism, we are confronted by the fact that it was not employed by the Arabs or any of the first peoples who embraced the faith of the Prophet, and that to speak of the crescent as a symbol borne by the Saracens who fought in the Crusades against Richard Cœur-de-Lion or Saint Louis is to be guilty of a dreadful anachronism. The truth is that the crescent was not identified with Islam until after the appearance of the Osmanli Turks, whilst on the other hand there is the clearest evidence that in the time of the Crusades and long before, the crescent and star were a regular badge of Byzantium and the Byzantine Emperors, some of whom placed it on their coins. It is held by some that the Osmanli Turks adopted the crescent and star from Byzantium after their occupation of Northern Asia Minor, whilst others hold that they did not employ it until after the capture of Constantinople in 1453. Moreover there is evidence that a crescent with a star or stars is far older than the Byzantine empire in the Ægean world. I here show (Fig. 1) a gem of the third century A.D. on the back of which appears a crescent with three stars. But the emperors of the East appear to have taken over a badge which is seen on the bronze coins of Byzantium in Roman times from the first century B.C. (Fig. 2). The reverse shows a crescent and star, which according to Hesychius alluded to the appearance of a miraculous light, which during a night attack by Macedonians revealed the assailants to the besieged.[2] The absence of such a badge on the banners of the Arabs who first carried the religion of Muhammad in every direction makes it clear that the badge did not originate in any survival of moon worship. We must therefore look for some other explanation of this famous device, which along with the horse-tail seems to have formed the banner of the Osmanli Turk when he took up his abode on the Golden Horn.

[1] The nucleus of this paper was given as a note to section H of the British Association at Leicester in 1907.

[2] Head, *Hist. Num.*, p. 231.

At the Southport meeting of the British Association I maintained the thesis that jewellery and ornament originated not in æsthetic but in Magic,[1] a doctrine which I repeated in a more expanded form before the Royal Anthropological Institute in the following year (1904). In my classification of the various objects used as amulets and consequently as ornaments, one of my categories comprises the tusks and claws of fierce and powerful animals. I illustrated this doctrine by the use of lion's claws as amulets all over Africa from Somaliland to the Cape, the use of tiger's claws in India, of leopard's claws in various parts of the world, and the very widespread use of boar's tusks, as for example the well-known boar's tusk ornaments of New Guinea (Figs. 3 and 4). At that time I could only conjecture from analogy that the natives of New Guinea used the boar's tusks for amuletic rather than for decorative reasons, for although like the ratti seeds, known as "crabs' eyes," they are commonly worn, travellers and even scientific explorers had with one accord assumed that they are used for purely æsthetic reasons. Shortly after that, Mr. Holmes in his excellent paper[2] stated from his own positive knowledge that the boar's tusk is worn for amuletic purposes by the natives of New Guinea. In the New Guinea charms both the single tusk is employed and also two tusks joined together, forming practically a circle (Fig. 4). It is highly probable that the pendants composed of two boar's tusks (Fig. 5)[3] worn by the Nagas of Assam are also used for prophylactic rather than for merely ornamental reasons, but of this I have as yet no proof. In the double lion's claw and double leopard's claw amulet of Uganda and East Africa we have a crescent formed by two claws. A fine example of this (leopard's claw) charm, for which I am indebted to my friend, the Rev. J. Roscoe, C.M.S., the well known authority on Uganda, I here figure (Fig. 6). Yet there is no more reason for supposing that this shape of amulet is due to Arab influence than is the New Guinea double tusk breast pendant.

Later on I obtained from Smyrna, through my friend and former pupil, Mr. A. J. B. Wace, Fellow of Pembroke College, the common horse amulet used by the Turks in Asia Minor. Since then I have procured another specimen (Fig. 7) also from Smyrna. It is composed of a splendid pair of boar's tusks joined together by a band of silver garnished with a sham turquoise in the middle and with two other pastes, one on either side. In the centre hangs a large flat metal pendant, semicircular above, its upper edge being plainly the survival of a pair of tusks, as will be seen by comparison with Fig. 15; the lower portion of the pendant ends in an apex, from the sides and extremity of which depend a number of small metal discs with holes in the middle. These I can prove to be the descendants of cowries still commonly worn attached to such pendants in Egypt, Greece (*infra* p. 248) and other parts of South-Eastern Europe. Besides these discs there are also, attached to the pendant, flat claw-shaped objects, which again can be shown to

[1] *Report of British Association*, 1903, p. 815.

[2] *Journ. Anthrop. Inst.*, vol. xxxiii (1903), pp. 125–134.

[3] The illustration is from a necklace with pendant in the British Museum (presented by Sir A. W. Franks in 1871).

represent leopard's or lion's claws similarly used as amuletic pendants in various parts of the Mediterranean. In the middle of the large pendant is a green paste. The whole amulet is suspended by a string of large opaque blue beads doubtless imitating turquoise.

The question now arises: Is this use of the boar's tusks in these crescent amulets or ornaments merely a freak of some particular manufacturer, who thus adapted two tusks of the unclean beast to form the Turkish crescent? This doubt can be at once set at rest. It is certainly no freak of very recent date for such ornaments were in full general official use amongst the Turks in their palmy days of conquest. My friend and former pupil, Mr. F. W. Hasluck, Fellow of King's College, Cambridge, writes to me that he has recently seen at Vienna "amongst the trophies of the Turkish siege (1685), some fine examples of the tusk ornament," including not only the crescent-shaped pendant, but also "the fourfold standard ornament." All such horse ornaments are commonly made of boar's tusks in Asia Minor, and those formed of boar's tusks are much more prized than those in other materials, and there is good evidence that the virtue of such amulets lies in the tusk itself and not merely in the crescent shape.

Mr. F. W. Hasluck, who has been indefatigable in procuring me specimens and other evidence, bought at Broussa a double tusk ornament practically identical with that here shown (Fig. 7). When making a voyage in a caïque one of his boatmen being seized with toothache and having seen the tusk ornament in Mr. Hasluck's possession, begged for a loan of it to apply to his jaw on the ground that it was a most excellent remedy for toothache. There can be little doubt that we have here a case of sympathetic magic, the powerful boar's tooth being supposed to be potent in curing pain in the teeth. This is completely confirmed by another crescent (Fig. 8). It was bought for me in Chios by Mr. Hasluck. It is composed of a fine pair of boar's tusks, but the tusks, however, are completely concealed from a front view by an elaborate work of fine beads strung on wire. Now, unless there was some particular virtue ascribed to the tusks, there is no reason why anyone who wished to make a mere crescent ornament should not have used some much cheaper material than a pair of tusks for a foundation for the bead-work. Further confirmation is gained from the fact that crescent ornaments often show themselves to be plainly imitated from boar's tusks.

I show (Fig. 9) an imitation in ivory of a pair of boar's tusks bought for me by Mr. Hasluck at Eskishehr. In Fig. 29 I show a double-tusk ornament from Smyrna in metal, in which there can be no doubt that the crescent is derived, as is shown by its cross-section, from a prototype made of a boar's tusk. Unless the boar's tusk was the more primitive and more prized form as that which had in it the real virtue, there was no reason why a similar crescent ornament made in metal should thus slavishly preserve the tusk model.

We now not unnaturally ask ourselves, whether after all, the boar's tusk crescent may not be far older, not only than Muhammadanism, but even

Christianity. Then arise the further questions:—Did the Osmanli Turks bring it with them? Did they find it already in the lands around the Ægean? or, did they both bring it with them and also find it already in the lands which they conquered? If it should turn out that it was in the Balkan and in the Ægean long before the Turk or the Christian, then we may believe that it is a survival from far-off pagan days, when it was used as it and similar tusks and claws are to-day in New Guinea, in Africa and many other parts of the world.

It will of course be said that Turkish influence may naturally have diffused over a wide area the use of the crescent. But if we can find a region of which the Turks never were masters and where the people, though still Christians, yet use the boar's tusk amulet, there will certainly be *prima facie* evidence that these Christians have not borrowed the amulet from the Turks.

In Fig. 10 I show a fine double tusk horse ornament which was in the loan exhibition of Montenegrin jewellery in the Balkan States Exhibition at Earl's Court in the year 1907. Through the kindness of Miss M. E. Durham, the well-known authority on Balkan lands, I am enabled to figure this fine specimen. Though it belongs to a Montenegrin gentleman, Miss Durham tells me that this particular example is probably of Albanian workmanship. This was confirmed by an Albanian Latin Catholic who informed Miss Durham that such amulets were in general use amongst his people for their horses. I give his statement in his own words as taken down by Miss Durham. In the same case with the specimen here figured was a broken double boar's tusk ornament from Servia very similar to that from Smyrna (Fig. 7). The Albanian, pointing to this broken boar's tusk ornament, said to Miss Durham:

"You know what he is? Pig's tooth. Ah, but what he for?" "What?" asked I. "Hang round horse's neck. Very good. You know why?" She replied, "No." He answered, "Keep off bad eye from horse. Now, I had one big one like that" (indicating the one here shown in Fig. 10). "Oh, he very good! I have one most beautiful horse. Oh, what finest horse! I put that fing (thing) on his neck. He never have no bad. It keep him all right. Everyone say, what beautiful horse!" "Turkish thing, isn't it?" said Miss Durham. "No! No! No! Albanian fing, quite Albanian. Very good fing. When I in my country always on my horse." This evidence coming from a Latin Catholic Albanian gives a strong presumption that the boar's tusk amulet is primitive in the Balkan and not merely copied from the Turks, whose hated symbol it is most unlikely the Albanians and Montenegrins would use to keep off the evil eye. In Fig. 11 I am enabled to show a genuine Albanian specimen obtained for me this winter (1908) by Miss Durham at Prizren. She adds that "sometimes two such crescents are worn one above the other," a fact which explains the metal survivals in the pendants of Figs. 7 and 16. But we can substantiate our case still better. In Italy single boar's tusks are amongst the most common amulets worn, as are leopard's claws and teeth.

I here show (Fig. 12) such a boar's tusk amulet used in Rome. Now, as this

is a single tusk and not a crescent, there can be no doubt of its being simply a survival from ancient times.

The modern Italian attaches a piece of badger's skin and a claw or tooth to his child to keep off ill luck and also to his horse for the like purpose; the ancient Italian attached to his child a wolf's tooth to keep it from being frightened and also a piece of wolf's skin, whilst he believed that wolves' teeth placed on his horse gave him great powers of endurance.[1] Doubtless the tooth of the fierce and untiring wolf, the favourite beast of Mars, gave courage to the child and endurance to the steed. Though I cannot show a wolf's tooth charm from Italy, I here figure (Fig. 13) a wolf's fang amulet obtained for me at Prishtina in Albania by Miss Durham, who bought it from a Vlah in 1908. Moreover, I am informed by Mr. A. J. B. Wace that he has seen double boar's tusk ornaments on horses in Italy. But as the single tusk is so common, there can be little doubt that the double tusk used by the Italians is of native origin and not borrowed from the Turk. It is thus highly probable that the Albanian double boar's tusk ornament is quite indigenous, and this view is likewise confirmed by the fact that it has no pendant, either star-shaped or otherwise, nor is it set with a turquoise, a stone which may be regarded as a Turkish addition. But of this more anon.

My friend Dr. A. J. Evans tells me that he has a double boar's tusk horse ornament which he obtained in Bosnia. We have just seen that in Servia ornaments similar to that from Smyrna (Fig. 7) are used, though it might be surmised that this was the result of Turkish conquest. Yet when we find a miniature double boar's tusk ornament on a string of apparently indigenous amulets comprising amongst them a crucifix, we naturally pause to consider whether, after all, the double boar's tusk is not primitive here, just as in Italy and Albania. The string of amulets here shown (Fig. 14), obtained through the good offices of Miss Durham, is worn coiled round the cap in the district of Nish in middle Servia. Furthermore objects of a similar form in metal are known amongst the prehistoric antiquities of the Danubian region, as for example one figured by Hoernes,[2] whilst in the Museum at Belgrade are some of these ornaments in gold (Fig. 15),[3] to which my attention was called by my friend and former pupil, Mr. W. J. Farrell, Fellow of Jesus College.

The reader will now be convinced that the crescent amulet has been in Danubian lands from before the dawn of history.

Let us pass to Palestine. I here show (Figs. 16 and 17) two specimens procured for me by my friend, Mr. R. A. S. Macalister, Director of the excavations of the Palestine Exploration Fund. Both examples are from Jaffa. The first is perfectly plain without any pendant, the tusks being simply joined together by a band of silver, as in the Albanian example, though in this case without any ornament. The other has a pendant formed of a crescent plainly repeating in metal the double

[1] Pliny, *H.N.*, xxviii, 19, 78; cf. Ridgeway, *Origin and Influence of the Thoroughbred Horse*, p. 505.

[2] *Urgeschichte der Bildenden kunst in Europa* (Vienna, 1898).

[3] I am indebted for this photograph (through Mr. W. J. Farrell) to the kindness of M. Milan Mitić of the Belgrade Museum.

boar's tusk and containing a star of ten points. We have already seen, though not so well defined, in the pendant of the Smyrna specimen (Fig. 7), a crescent in metal repeating the double boar's tusk motive. Here then though the star is found as a pendant, yet the main element even in the pendant itself is the repetition in metal of the double boar's tusk. Mr. Macalister writes to me that "these ornaments are hung on horses to keep off the evil eye. They are sold at a very high price. They sometimes run up to twenty francs or so. So they are a valuable prophylactic. Moreover, I dig up boar's tusks here (Gezer) in the works, and also pendant silver crescents, which seem to be a representation of just such amulets. I saw in the *Athenæum* your theory. If ever you come here keep the idea to yourself. You would certainly be murdered if it got about that you believed that a reminiscence of the unclean beast dominated every mosque in Islam."

Once more will the reader be convinced by the occurrence of boar's tusks and silver pendants of similar shape in the Palestine excavations, that the amulet was in use long before any Moslem set foot in Syria, probably before Abraham himself ever came from Haran.

I have been recently informed that as might naturally be expected, boar's tusk amulets are used on the horses in Egypt, but I have not seen any example. I have in my possession (given to me by my friend, Mr. C. T. Currelly, Director of the Oriental Museum at Toronto) an amulet (Fig. 18) from Nubia consisting of a lunate section of an elephant's tusk covered with sixty incised circles; it is attached to a leathern necklace on which are four of the ordinary leather cases used by Moslems for containing pieces of the Koran. As the necklace was thus plainly amuletic, we may infer that the ivory crescent with the incised circles was also a talisman. There is plenty of evidence to show that hairs from an elephant's tail as well as objects made of ivory have always been regarded as highly talismanic by many African peoples. I have two bracelets each formed of a hair from an elephant's tail made especially to be a talisman by an aged chief in Angoweland (Fig. 19). These objects were kindly given to me by my niece, Mrs. Montgomery Miller. Pigafetta tells us that such hairs were greatly prized as amulets by the people of Congo, "because the elephant is a mighty beast."

Fig. 20 shows a crescent amulet of boar's tusks kindly given to me by Mr. Percy P. H. Hasluck, who bought it at Tunis. The pendant is a hand in base metal like those on a necklace procured for me by my friend, Mr. F. W. Green, M.A., Jesus College, in the oasis of Biskra. The hand is, of course, one of the most familiar defences against the evil eye throughout all Mediterranean lands. It was even found in the prehistoric graves of Naqada in Egypt. From the use of a hand as a pendant instead of a star as in the Turkish emblem, it is not improbable that the boar's tusk crescent had originated in North Africa quite independently of Turkish influence, and may well have been there many centuries before Christ. This is rendered all the more probable from the fact that similar objects are used as hunting charms by the Bahamba tribe of Batetela in the Congo Free State. These latter must almost certainly be of independent origin.

By the kindness of Mr. E. Torday and Mr. T. A. Joyce I am enabled to figure one (Fig. 21) recently sent home by the former to the British Museum.

Let us now revert to the Ægean and to the mainland of Greece; Fig. 22 shows a double boar's tusk crescent with a Venetian coin as a pendant. It was lately procured for me at Candia in Crete, by my friend Mr. Farrell. He bought it new at a shop in Candia, and it was made up to order with a Venetian coin. It seems more usual to have three small coins pendant from the tusk. "One man told me (Mr. Farrell) that the Turks use Turkish coins, and the Christians anything that is not Turkish. Some of the cab horses in Candia wear these tusks fastened to the neck by a string of large blue beads (*cf.* Fig. 7), but I never saw a Christian's horse wearing one, and consequently saw none in the country where Turks are rare. Nevertheless, they say that Christians once used them, but not very commonly. Since the liberation they despise the ornament as being the Turkish crescent. For the same reason they objected to the star on the Cretan flag, but Jannaris pointed out that crescent and star were the symbol of Byzantium long before Turkish days, quoting the well-known story of a siege of Byzantium, when the crescent moon with the star on the tip revealed an attacking party and thus saved the city" (*supra* p. 241).

My friend and former pupil, Mr. R. M. Dawkins, Fellow of Emmanuel College, and Director of the British School at Athens, tells me that when the members of the British School were carrying on their excavations at Palaiokastro in East Crete, their foreman, a Cretan Christian, always kept such an ornament as those which I have been describing, attached to the neck of his horse. It is not likely that Cretan Christians with all their fierce hatred of Muhammadans and Turks, would regard a boar's tusk amulet as endowed with virtue, if it had no other origin than in the crescent of the Turkish standard.

It will have been noticed that in the description of several of the tusk amulets, blue beads are attached in some form or other, whilst sham turquoises are set in one of them. The turquoise is an especial favourite all across Central Asia not merely for its beauty, but for its talismanic virtue, and it is an especial favourite with Persians, Turks and Magyars. There can be little doubt that the blue beads, which are used all through the eastern Mediterranean as a charm against evil, are themselves imitations of the turquoise, but not of the central Asiatic stone. For the turquoise and its imitations in blue faïence and glass had been prized in Egypt and the neighbouring countries for long ages before the Turks brought with them the turquoise of Central Asia. The Egyptians knew and prized the turquoises of Sinai for many centuries before Christ, and there can be little doubt that the light blue colour which is so common in many Egyptian objects, was imitated from the turquoises of Sinai, which are both paler in colour than those of Central Asia, and have a yellowish coloured, instead of a dark, matrix. When women in Roman Catholic countries place blue on their babies to put them under the protection of the Madonna, whose colour it is, they are but doing what Muhammadan mothers are doing in Turkey and Egypt, where amulets of blue

beads are placed on children. Christians and Muhammadans alike know not that they are but continuing a practice which was in vogue not only when Christ was born, but probably for many centuries earlier.

I now pass to Greece itself. Last autumn Mr. F. W. Hasluck, when travelling in the Morea, saw the double tusk charm on a horse in Triphylia, but the pendant was a cross formed of four cowries sewn on leather. Here the boar's tusks were combined with real cowries (not survivals in silver as in Fig. 7) which are still used, combined with a Christian medal, in Corfu as a child's amulet[1] (Fig. 23), and also in Montenegro, as I am informed by Miss Durham. But in the Triphylia example we have the primitive cowry charm arranged under Christian influence in a cruciform pattern. The next illustration (Fig. 24) shows a fine specimen, procured for me in Athens by Mr. F. W. Hasluck. The band of silver joining the tusks is adorned with a rude heraldic design with a lion as supporter on either side, each lion in turn being outflanked by a man with a gun and a dog. The dealer who sold this example to Mr. Hasluck insisted on a high price on the ground that if any man who had a really valuable horse came along, he would certainly be willing to pay well for it. I also figure (Fig. 25) another from Athens of a much ruder description. It was procured for me by Mr. W. J. Farrell. It consists of a crescent in bone imitating a pair of tusks, the band being represented by a small piece of cloth; the loop for suspension is simply formed of strong thread, whilst the pendant is attached by the same material. The heavy pendant is of silver, but of coarse workmanship, bearing the arms and motto of the King of the Hellenes. I also show (Fig. 26) another specimen from Athens procured for me by Mr. Hasluck, where the crescent of tusks is applied to a leather pad, the central space being occupied by a little circular mirror,[2] over which hang five pendants of blue beads terminating in small silver coins. There is a fluffy fringe of silk all round the outside edge of the pad, which is fitted with a leather strap for buckling it on to the bridle. The next illustration (Fig. 27) shows another specimen from Athens (for which I am also indebted to Mr. Hasluck), but this time made entirely in white metal. The band which joins the real tusks is indicated in the metal imitation, and from it hangs a circular disc, all the upper edge of which is formed of a representation of a pair of conjoint tusks (as in Figs. 7 and 15), whilst the lower part of the disc is adorned with a sham turquoise. Again we may argue that it is unlikely that the Greeks of Peloponnesus and of Athens would have borrowed the crescent from the hated Turk, and again it may

[1] This specimen was given to me by my old friend and former pupil, Professor R. C. Bosanquet.

[2] Miss Durham informs me that in the Balkan States the women regularly wear miniature looking-glasses in their hair, whilst Dr. Hildburgh tells me that the Chinese used mirrors to keep off the evil eye. The use of mirrors then at Athens and in the Balkan is probably for the same purpose, and it may be possibly a survival from very ancient times. The gorgon's eye which brought destruction is surely the earliest recorded case of the evil eye, and a curious detail of the use of his shield by Perseus when he slew her, may possibly refer to its use as a mirror.

be objected that strange borrowings from the conqueror are often made by the conquered. But once more all such suspicions of borrowing in this case will be lulled to rest when we turn to the next illustration (Fig. 28). It shows a silver representation of a double tusk ornament, found by the members of the British School in 1907, when excavating the shrine of Artemis Orthia at Sparta. The illustration is from a drawing by my friend and former pupil, Mr. J. P. Droop, B.A., Trinity College, who called my attention to it. I must here thank the Committee of the British School at Athens for their kindness in permitting me to publish this most interesting object. I learn that several similar objects have been found in the last season's work (1908). I also figure (Fig. 29) a bronze object with trace of gilding still upon it, which seems plainly by its section to be a representation of a double boar's tusk amulet. It was given to me by Mr. Droop, who procured it in Athens, though it was said to have come from Boeotia.

As the date of the Spartan specimen cannot be later than 700 B.C., we may now rest assured that neither the peasants of Triphylia, nor the Athenians, nor the Cretans borrowed the crescent from the Turk.

The next illustration (Fig. 30) shows an ornament imitating in white metal a double tusk horse amulet from Smyrna, where the real tusks are in general use. I am once more indebted for this specimen to Mr. Hasluck. In it there is no sign of the band uniting the tusks, as is the case in the specimens from Athens and from Sparta, but the section of the boar's tusk is carefully preserved.

It may be objected by the critic that, though I have shown that single tusks are used in Italy and New Guinea, I have produced no evidence for such in Turkish areas, and that accordingly the double-tusk ornament has arisen through a desire to imitate the crescent or the crescent moon in some white or ornamental material, such as teeth, ivory, bone, or silver. A glance at the next illustration (Fig. 31) will dispose of this supposition. Here is a single boar's tusk amulet obtained by Mr. Hasluck in Chios, an island still in Turkish hands. As we now find in the Turkish sphere the single tusk as well as the double in use, we need have no doubt that the use of the boar's tusk or tusks in this area is completely parallel to the occurrence of it and them in Italy and in New Guinea, in both of which the single and double tusk are found as amulets.

Again the tiger's claw is used all over Hindustan and Further India, whilst in parts of that area, as in Ceylon, two tiger's claws disposed in crescent shape are likewise used.

We have seen above (p. 242) that in Uganda two lion's claws or two leopard's claws similarly arranged are common, but yet in Uganda as well as practically over all Africa the single lion's claw is in common use.

If it should be maintained by those who love solar and lunar speculations that the two boar's tusks have been arranged in crescent form to imitate the white moon, I need only point out that the leopard's claw amulet from Uganda covered with beads can scarcely be said to represent the silver moon.

Miss Durham has procured recently in Albania from a Kilmem woman

between Robigo and Miloti a crescent amulet, "very efficacious," made of two talons said to be those of a hawk (Fig. 32). Doubtless talons of fierce birds are used for the same reason as the teeth and claws of strong or savage quadrupeds. I here figure an amulet made of a cock's spur (Fig. 33) obtained for me by Miss Durham at Prishtina in Albania, whilst I possess a similar amulet from Smyrna. Furthermore my friend Dr. Dorsey, Director of the Field Museum of Anthropology at Chicago, informed me that in his museum there are several Indian crescent amulets made of claws and horns. By his kindness and that of Dr. Skiff of the same museum, I am enabled to figure three specimens: (1) from the Flathead Indians, Flathead Reservation, Montana; a hair ornament composed of two eagle talons arranged to form a crescent with pendant strips of untanned hide (Fig. 34): (2) from Tonkawa, White Eagle, Oklahoma; a hair ornament composed of two eagle talons bound with beaded buckskin to form the talons into a crescent; it has a fringe of long strips of buckskin with beaded edges (Fig. 35): (3) from the Cheyenne Indians, Lamedeer Reservation, Montana (Fig. 36); a medicine necklace formed of a string of cylindrical glass beads, alternating with two globular glass beads with pendants of two horse teeth, a braid of sweet grass, and a tail of a deer (the upper half of which is dyed red); directly over the tail is a crescent formed by two small calf horns; there are two buckskin bundles of medicine attached to the strings of beads. It is obvious that neither hawk's claws, eagle's talons, nor calf's horns are well adapted to represent the colour of the silver moon. I may point out that bear's claws were a familiar form of amulet amongst the North American Indians, though I cannot cite any case of two such claws forming a crescent. On the other hand my friend Mr. T. A. Joyce, of the Department of Ethnography in the British Museum, and Secretary of the Royal Anthropological Institute, to whose kindness I am constantly indebted, has pointed out to me a double bear's claw amulet from Borneo (Fig. 37) which is here reproduced. It will hardly be said that this faithfully represents the silver crescent moon.

I have shown examples of the imitation of boar's tusks in ivory, bone, gold, silver, bronze, and white metal. But this is exactly parallel to what we find amongst both civilized and barbarous peoples in many parts of the world. If one cannot get the real thing, he must be satisfied with something like it in shape or material or in both. Since the lion has now become practically extinct in the Transvaal and Cape Colony, the Caffres have to be content with imitations of lion's claws which they make for themselves out of horn. I here figure (Fig. 38) a Caffre amulet brought back from the Transvaal during the late war, and given to me by my friend the Rev. Christopher Graham, M.A., Gonville and Caius College, one of the Cambridge Volunteers who had served under General French. It consists of three imitation lion's claws made of horn, and eight white beads strung on a plait of hair. In the British Museum there is a fine Zulu necklace made of the entire vertebral column of a snake, and there are two necklaces of wood carved in careful imitation of the vertebræ of the snake, also presented by the donor of that formed of real vertebræ. There is further a third necklace of wooden

beads, in which, though not carefully carved, the vertebral type can be plainly recognized. The readiness with which barbarous peoples, as well as those on a higher plane of culture, use imitation amulets in lieu of the real objects, has led certain manufacturers in Bohemia to inundate many parts of the world with sham amulets made of pottery, glass, and celluloid. The use of sham claws and tusks made in bone, ivory, or silver, is very common in Italy. Accordingly, in crescents of bone, ivory, gold, silver, or bronze, we have not an attempt to reproduce the colour of the moon, but simply the substitution of another material for the real object, as is customary all the world over.

It has long been held that in the trappings of our cart-horses, which are descended from the great war-horses of the Middle Ages,[1] we have survivals of symbols or amulets brought back to England from the Crusades. Amongst these a crescent or a crescent and star is very common. I have elsewhere[2] argued that although some of these trappings may be descended from ancient amulets, yet in others we may have survivals from the heraldic badges often attached to the bridles of mediæval war-horses, examples of which in my own possession I here show (Fig. 39). My caution seems to have been justified by the fact that in one of the tusk amulets from Athens we have a pendant bearing the arms of the King of the Hellenes, a fact which demonstrates the danger of trying to unlock problems by using only one key. The next illustration (Fig. 40) shows a modern cart-horse pendant in the shape of a crescent and star, purchased by Mr. F. W. Hasluck at a saddler's in Gray's Inn Road. Mr. Hasluck now writes to me that he has recently seen in the Vienna Museum an example in brass of the boar's tusk ornament on Roman horse-trappings, apparently the same as that figured by Daremburg and Saglio (*s.v.* Phalera). It is quite the Gray's Inn Road type (Fig. 41). Fig. 42 shows a Cambridge cart-horse pendant (belonging to my wife); it is a crescent, without the star, but it will be observed that in its cross section, like the Turkish metal example from Smyrna, it fully preserves the true section of the boar's tusk.

Although the use of the crescent horse-shoe for luck may be partly due to the good fortune attached to finding iron, yet it is quite possible that the crescent derived from the boar's tusk and used for centuries on horse-trappings may have contributed to the peculiar popularity of the iron in the shape of a modern horse-shoe. One thing at least is certain, that iron horse-shoes of any kind are later than A.D. 380, and they are therefore long posterior to the use of boar's tusks and their imitations. In the Balkan peninsula the horse-shoe still remains a flat iron slipper with only a small hole in the middle. But as this slipper type was formerly used in England,[3] the employment of the crescent horse-shoe for amuletic purposes must be of comparatively recent date.

The Crusaders may indeed have brought back with them the device of the

[1] Ridgeway, *Origin and Influence of the Thoroughbred Horse*, p. 366.
[2] *Ibid.*, p. 505.
[3] *Ibid.*, p. 503.

crescent and star from the east, but it was not borrowed from the Saracen. On the other hand they probably saw the crescent of boar's tusks in common use on the horses of Italy (where they had continued from Roman days), Greece, the Islands, Anatolia, Syria and Egypt, whilst everywhere in the lands influenced by the emperors of the east the crescent and star were the constant symbol of Byzantium from the days when, as I have already pointed out (p. 241), these symbols appeared on the coins of the Byzantine emperors. Certain it is, that by the beginning of the thirteenth century, the crescent and star were used as a badge in lands remote from Constantinople, by those who had borrowed it from Byzantium. Richard I is said to have assumed as a badge the crescent surmounted by a star after 1198, whilst his brother John used the same device with the motto CHRISTO DVCE.[1] It is the type on the reverse of the silver pennies struck by that monarch at Dublin (1210). The same badge is carved over the stalls of the Dean and Precentor in St. Patrick's Cathedral in Dublin, and formerly in the old cathedral it was on all the prebendal stalls. The authorities are unanimous in ascribing this to John's connection with the cathedral. Finally in 1884, during excavations in the precincts of Christ Church Cathedral in Dublin, a bronze badge was found consisting of a star within a circle from which depends a somewhat stumpy crescent with its points down. Henry III used the same device. On the other hand, it actually occurs on Sassanian coins (Fig. 43) (before A.D. 650) and on those of the Muhammadan invaders of India by A.D. 1206,[2] probably copied by them from Sassanian or from Byzantine coins. The star and the crescent and also a crescent combined with a cross are found on Bogomil grave-stones near Stolac in Herzegovina, two examples of which I have before me from drawings made on the spot by Miss Durham.

It is alleged[3] in reference to Byzantium that "the Cross above the Crescent is found in many ruins of the old Greek city; among others, on the Genoese castle on the Bosphorus." In allusion to this circumstance Lord Houghton wrote in 1843:

> "Be but Byzantium's native sign
> Of Cross on Crescent once unfurled,
> And Greece shall guard by right divine
> The portals of the Eastern world."

But it need not be assumed that it was only after the Crusades that boar's tusk or crescent amulets for horses became known in Upper Europe. Boar's tusks perforated for suspension were used by the Britons of the Stone Age, as is proved by various examples found with interments, and we may not unreasonably infer

[1] These details are from a paper by my friend the late Major Otway Wheeler Cuffe, "King John's Badge, 'Star and Crescent'" (*Jour. Proc. Roy. Soc. Antiquaries of Ireland* vol. xxxii, pp. 74–6).

[2] M. Longworth Dames, "The Mint of Kuraman," with special reference to the coins of the Qarlughs and Khwarizm-Shahs (*Jour. Roy. As. Soc.*, 1908, pp. 389–408).

[3] G. W. E. Russell, *Collections and Recollections*, p. 59 (Nelson).

that they were used as amulets.[1] I have shown that the Romans used the teeth of wild beasts as horse amulets, whilst in the horse trappings at Vienna we have good evidence for the use of the boar's tusk ornament in Roman days. Thus such trappings may well have passed into Gaul and Britain in Roman times. Moreover we have to bear in mind that the boar was a badge of Gaulish chieftains, as is shown by their coins, whilst boar's tusks were placed on helmets both in northern and southern Europe from a very early time, not for mere decoration but rather that the warrior might have the courage and strength of the boar, as is still the belief in New Guinea.

So Seleucus, King of Syria, is represented wearing a helmet of bull's hide with the ear and the horn, which he wore as a symbol of divine strength.[2] For the same reason doubtless, Zedekiah, son of Chenaanah, "made him horns of iron" wherewith Ahab should push the Syrians until he had consumed them.[3] A curious parallel to such practices is afforded by some tribes on Mount Elgon in Uganda, whose warriors wear a crescent-shaped head-dress (Fig. 44) made of the tusk of a hippopotamus. The Baganda formerly used a crescent head-dress made of iron inlaid with copper (Fig. 45), apparently copied from the hippopotamus prototype. Their proverb, "When you think of the new moon, think of me," does not refer to this object, but to the actual new moon itself. The latter not only seems more natural, but Mr. Roscoe has now ascertained that the iron crescent seems only to have been worn for war, and was not lunar. For both these specimens and for the information respecting them I am indebted once more to my friend, Rev. J. Roscoe, C.M.S., Uganda. The hippopotamus tusk breast ornament[4] (Fig. 46) used by some African tribes is probably worn for the like purpose. I also am enabled to show, by the kindness of my friend Mr. C. W. Hobley, C.M.G., Assistant Commissioner, Nairobi, British East Africa, three head-dresses worn by the Ja-Luo of Kavirondo. Fig. 47 shows a cap made of the dewlap of an ox, split and stretched over a block, and decorated with a hippopotamus tooth. Another (Fig. 48) is decorated with ram's horns and cowries, whilst the third (Fig. 49) is adorned with reed buck's horns and cowries. These remind us of the combination of boar's tusks and cowries in Greece, mentioned above.

There are thus two main streams contributing to the use of the crescent as a badge by the Turk—the old amulet made of one or two boars' tusks, and the crescent and star which he found everywhere in his new empire. But the latter may itself have originated in the double boar's tusk, for astrological devices do not appear in Roman art until a comparatively late period. It was only in the century before Christ that the Chaldean astrologer became dominant at Rome. Without denying that representations of the moon may have been made and venerated by the inhabitants of the Swiss lake-dwellings, and that in some regions and some periods, the crescent of boar's tusk was likened to the new moon; yet with the

[1] Evans, *Stone Implements*, pp. 47, 83, 148, 328. *Cf.* those from Hod Hill, Dorsetshire, in the British Museum.

[2] Appian, *Syr.*, 56. [3] 1 Kings xxii, 11. [4] From my own specimen.

evidence of the Spartan and Danubian metal imitations of boar's tusk amulets before us, we may conclude with some safety that the use of crescents of boar's tusks and of those imitated from such boar's tusks was far older in the region ruled by the emperors of Byzantium than the badge of crescent moon and star. It may well be that the emperors of the East adopted the Star of the East as a fitting device referring both to their empire and to the unerring guidance of the Star of Bethlehem. The Western star (Hesperus), placed by the Western Locrians as a badge on their public seal and also on their coins in allusion to their geographical position, affords a parallel for the former, whilst the statement made in books of heraldry that Richard I assumed the star as that of Bethlehem would certainly countenance the latter. As Richard was simply borrowing the device of the Byzantine emperors, it may well be that the star in their badge was generally recognised as the Star of Bethlehem.

When the Turks came they found the boar's tusk crescent in use, and they had been probably using it themselves at least from the time of their settlement in Asia Minor, where they would certainly have become acquainted with the boar, an animal not to be found in the steppes of Central Asia. In their standard consisting of the crescent and horse-tail and in their horse ornaments we may perhaps recognise only another form of the amulet of badger's hair and teeth of wild beasts used now in Italy on horses (Fig. 50). I am enabled, to show (Figs. 51, 52) by the kindness of Dr. List, Keeper of the Imperial Armoury at Vienna (and from photographs taken by himself) two of the trophies captured from the Turks at the siege of Vienna in 1685 (*cf. supra*, p. 243). One of these contains two boar's tusks, whilst the other, described as a standard by Mr. Hasluck, has no less than four. Accordingly they would have had little hesitation in adopting the crescent and star which they saw everywhere in their new dominions, and this all the more readily as they were anxious to represent themselves as the true successors of the emperors of the east.

We may now conclude with high probability that in the Turkish crescent we have but a survival of one of those amulets formed of the tusks and claws of boars, lions, tigers, leopards and other fierce animals, and that we have here but one more of the many touches that make the whole world kin.

DISCUSSION.

Mr. ARTHUR EVANS said that Professor Ridgeway had certainly proved his point that a widespread class of amulets—chiefly used as horse ornaments—originated from two boar's tusks and were in their fundamental conception not lunar emblems but of the same nature as tiger claw or bear tooth charms. They were in fact due to "sympathetic magic," and the existence of amulets of this class consisting of only a single tusk is specially pertinent in this connection. Such at least could have no reference to the crescent moon.

Crescent-shaped phaleras of this kind frequently adorn the breasts of

horses on Roman monuments; and they seem to have been of great antiquity in Syria. Crescent-shaped pendants of bronze with the horns downwards are also common in the Swiss Lake Dwellings of the Bronze Age. Mr. Evans could give further striking instances of the diffusion of this type of charm in the Balkan countries. He possesses exceptionally fine examples from Kulen Vakup in Bosnia. They seem to have been specially due in those regions to Turkish and Muhammadan influence. It may, indeed, be taken as a general rule that, wherever Islam holds, amulets and talismans are exceptionally abundant. They seem to be a kind of compensation for the absence of images.

It might be freely admitted that this class of charm was crossed by the crescent symbol of purely lunar origin. This celestial element came out in the star suspended between the tusks in several examples.

As the Turks were pre-eminently a horse-loving race, Professor Ridgeway's view that amulets of this kind supplied the true origin of their crescent emblem may well contain an element of truth.

There can indeed be no doubt that the crescent and star as the badge of Ottoman Empire was in the main a direct inheritance from Byzantium. The crescent and star already appears as the civil badge on the Greco-Roman coinage of Byzantium in allusion to the legend that the miraculous appearance of the moon had saved the city from a night attack by Philip of Macedon. Constantinople took over the time-honoured emblem of the city, and later on when a good deal of Western feudalism had blended itself with Byzantine traditions the crescent moon with the star above became the armorial badge of the imperial scutcheon. It was thus, in turn, adopted by the Slavonic princes, who from time to time assumed the imperial title, and finally in Servia, Bosnia and elsewhere became a general badge of Illyrian nobility.

The Turks on the Conquest of Constantinople took over these armorial bearings with many of the external symbols of Byzantine Empire—Mahomet II making himself out politically as the legitimate successor of the last Constantine.

But in the Ottoman adaptation of the star and crescent a noteworthy modification is visible. Where, as in the earlier device alike on the Byzantine coinage, the imperial scutcheon and star is placed above the moon, in the case of the Muhammadan version the moon is half turned over above the sky and seems as it were to impale it with its horns. It is worth considering whether this may not be due to influence of the old Turkish talisman made from the two boar's tushes to which a star is sometimes suspended as a kind of religious afterthought. The contrast between the old Byzantine emblem and the later Turkish badge, of such tragic import in the lands between the Danube and the Ægean, suggests to him:

> Erstwhile above the moon Illyria's star
> Shed sov'ran radiance from her shield afar;
> Now, cast beneath the horns by Fate's hard stroke,
> Her captive beams proclaim the Paynims' yoke.

Mr. M. LONGWORTH DAMES: It seems clear that Professor Ridgeway has proved in his most interesting and instructive paper that the badge of the star and crescent was used in Byzantium under the later emperors, and that the origin of the

crescent may with great probability be attributed to a charm composed of two boar's tusks joined at the base and hung so as to form a crescent with the points turned down. But it remains to be shown when this badge was first adopted by the Turks; was it before or after their capture of Constantinople? And it seems possible also that the Turks may have been familiar with the star and crescent in some form, though not, perhaps, as a national emblem, before they came in contact with the Byzantine Empire. I deduce this from the appearance of these signs on the coins of some kings of Turkish origin who reigned in Afghanistan and the Indian frontier. As is well known the Kings of Ghazni, beginning with Conqueror Mahmūd, were Turkish slaves of the Samānī kings, and their successors the Kings of Ghor (who began to reign shortly before A.D. 1200) although not Turks themselves, relied to a great extent on their Turkish troops, and were succeeded in their Indian conquests by Turkish kings, the descendants of their Turkish servants. On their coins and those of Yalduz or Yildiz, one of these successors, the star and occasionally the crescent appear, and the same may be said of the Karlugh Kings, also Turks, who reigned soon afterwards in the Kuram Valley. E. Thomas considered the star as the special badge of Yalduz, whose name means "star." I have given specimens of some of these coins in a paper of the "Coins of the Kuramān Mint," now about to appear in the *Journal of the Royal Asiatic Society.* One coin, dated 605 (*i.e.*, A.D. 1209) bears both the star and crescent. I may add that these Eastern Turks were never brought in contact with the Byzantine Empire, and that their coins show no traces of Western influence, and no imitation such as is well known on the coins of the Urtukes and others, of reproduction of Byzantine types. They were unconnected, except remotely, with the Ottoman Turks, and possibly the use of these badges may be referred to an earlier period when the two branches of the race were more nearly connected. In any case, even if there were such ancient use it would not exclude the adoption of a new form of similar emblems in Asia Minor and Constantinople.

Dr. WRIGHT remarked that Professor Ridgeway, in seeking to show that the crescent had evolved from boar's tusks, had adduced several instances of early "crescent ornament" in which the shape of the crescent was clearly borrowed from that of the tusks, but he had omitted to mention examples which had come down to us from a still higher antiquity, the so-called *Mond-bilder*, or Moon-figures, made of clay, which are found in Swiss lake-dwellings of neolithic date. These objects seem to have served no other purpose than that of decoration, being perfectly crescentic in shape and exhibiting no trace of having been evolved from any such object as a tusk or tooth.

The earlier the instance the more important was it in throwing light on the origin of the crescent. The evidence before us showed that the crescent made of clay was earlier than the crescent made of boars' tusks. The tusks might have been utilised in later times as providing the means for the easy manufacture of the crescent.

Miss M. E. DURHAM said that the crescent and the star was not uncommon in Bogomil graves in Bosnia and the Herzegovina. She supposed that in that case they were Slavonic coats-of-arms or crests.

Explanation of Plates.

PLATE XIX.

Fig. 1.—Gem of third century A.D.
Fig. 2.—Coin of Byzantium with crescent and star.
Figs. 3, 4.—Boars' tusk ornament, New Guinea.
Fig. 5.—Two boar's tusks, Nagas of Assam.
Fig. 6.—Leopard's claws, Uganda.
Fig. 7.—Horse ornament, Smyrna.
Fig. 8.—Boar tusks covered with beads, Chios.
Fig. 9.—Ivory imitation tusk crescent, Eskishehr.

PLATE XX.

Fig. 10.—Pair of tusks, Montenegro.
Fig. 11.—Albanian crescent, Prizren.
Fig. 12.—Boar's tusk amulet, Rome.
Fig. 13.—Wolf's fang amulet, Prishtina, Albania.
Fig. 14.—String of amulets, Middle Servia.
Fig. 15.—Gold tusk crescents, Belgrade.

PLATE XXI.

Figs. 16, 17.—Boar tusks, Jaffa.
Fig. 18.—Ivory crescent, Nubia.
Fig. 19.—Elephant's hair bracelet, Angoweland.
Fig. 20.—Crescent of tusks, with hand, Tunis.
Fig. 21.—Crescent of tusks, Congo.
Fig. 22.—Boar's tusks, Candia.
Fig. 23.—Cowry and medal, Corfu.

PLATE XXII.

Fig. 24.—Tusks ornament, with worked silver band, Athens.
Fig. 25.—Ditto, rude work, Athens.
Fig. 26.—Ditto, with mirror, Athens.
Fig. 27.—White metal specimen, Athens.
Fig. 28.—Silver crescent ornament, Shrine of Artemis Orthia, Sparta.
Fig. 29.—Bronze crescent, Bœotia.
Fig. 30.—Metal tusks ornament, Smyrna.
Fig. 31.—Single tusk, Chios.
Fig. 32.—Hawk talons' crescent, Albania.
Fig. 33.—Cock's spur amulet, Prishtina, Albania.

PLATE XXIII.

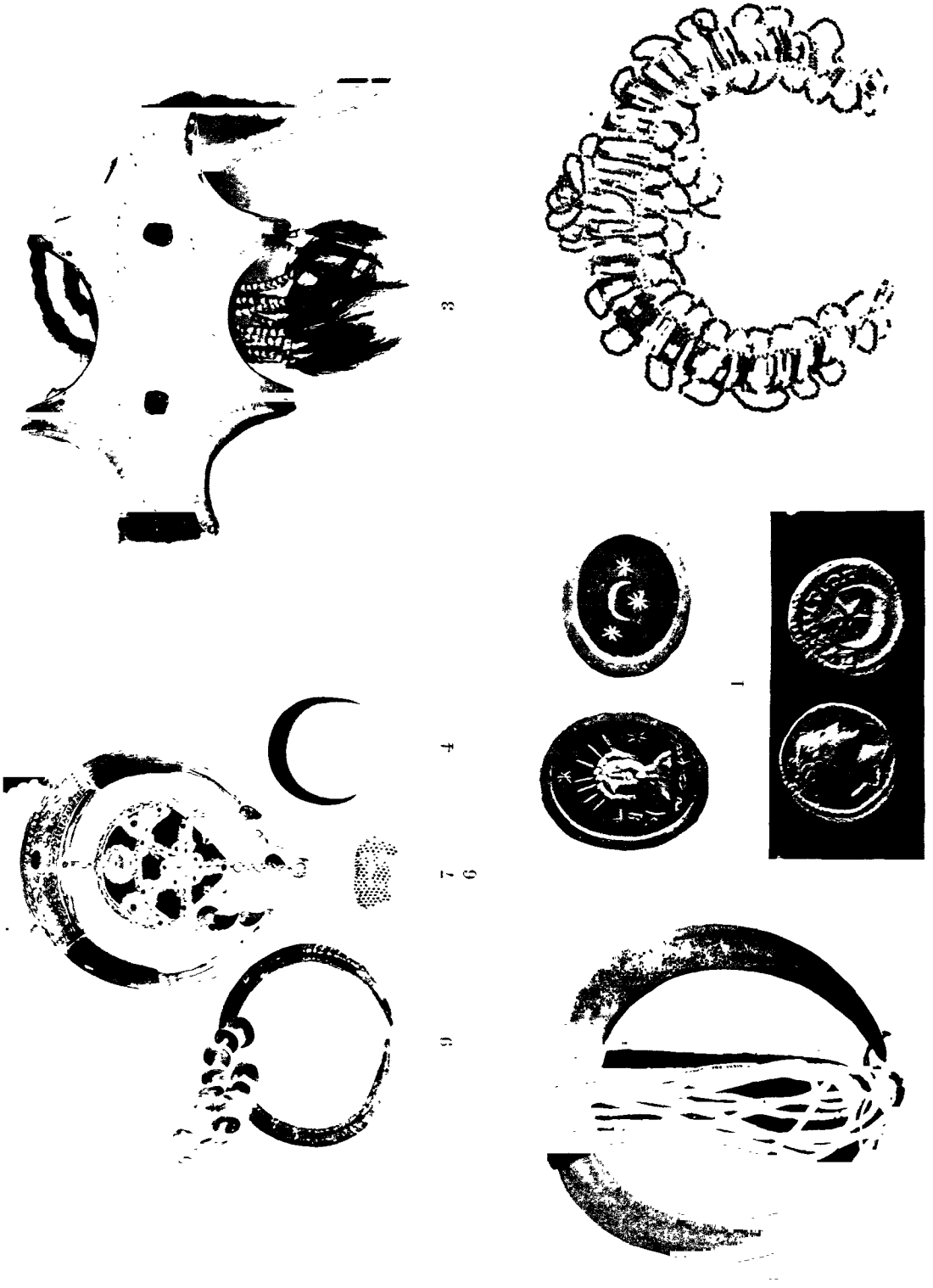
Figs. 34, 35.—American Indian eagle talons' amulet.
Fig. 36.—American Indian amulet.
Fig. 37.—Bear's claw amulet, Borneo.
Fig. 38.—Imitations lion's claws, Kaffir.
Fig. 39.—Mediæval heraldic horse ornaments.

PLATE XXIV.

Fig. 40.—Horse ornament, Gray's Inn Road.
Fig. 41.—Roman horse trappings, Vienna Museum.
Fig. 42.—Cambridge cart-horse pendant.
Fig. 43.—Sassanian coin.
Fig. 44.—Hippopotamus tusk head-dress, Mount Elgon.

PLATE XXV.

Fig. 45.—Baganda crescent head-dress of iron.
Fig. 46.—Hippopotamus tusk breast ornament.
Fig. 47.—Ja-Luo head-dress, with hippopotamus tooth.
Fig. 48.—Ja-Luo head-dress of ram's horns and cowries.
Fig. 49.—Ja-Luo head-dress of reed buck's horns and cowries.
Fig. 50.—Badger hair and tooth amulet, Rome.
Figs. 51, 52.—Turkish trophies with boars' tusks, Imperial Armoury, Vienna.



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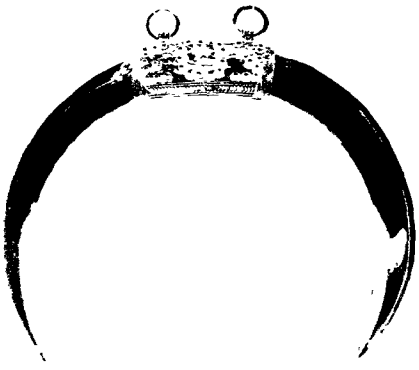

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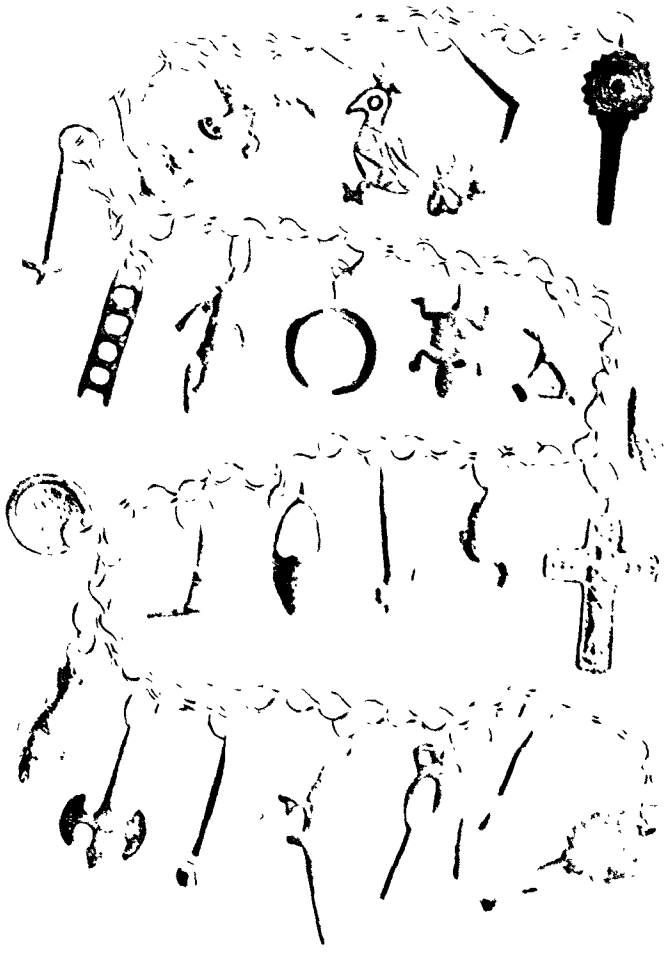

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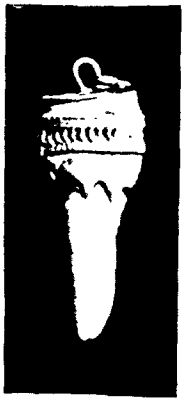

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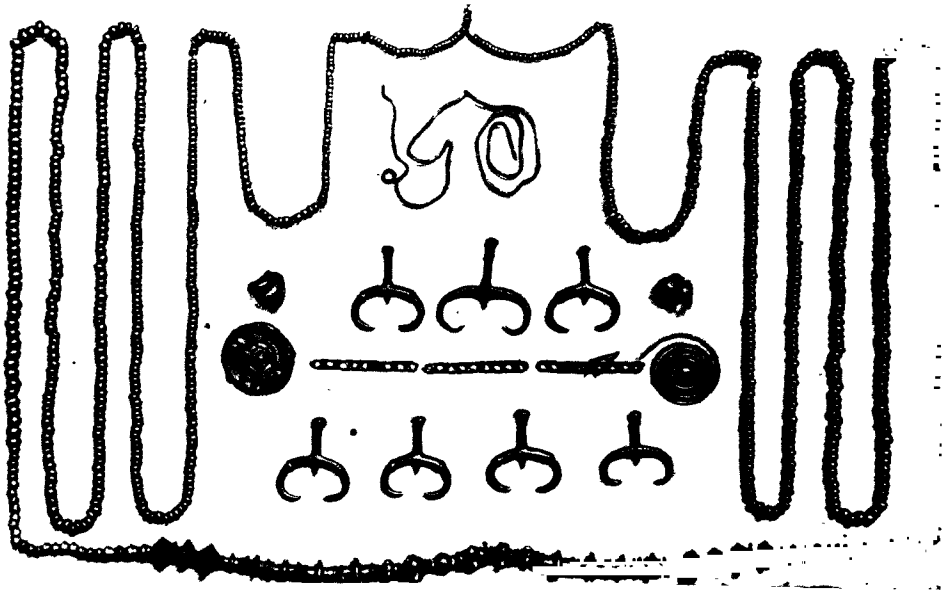

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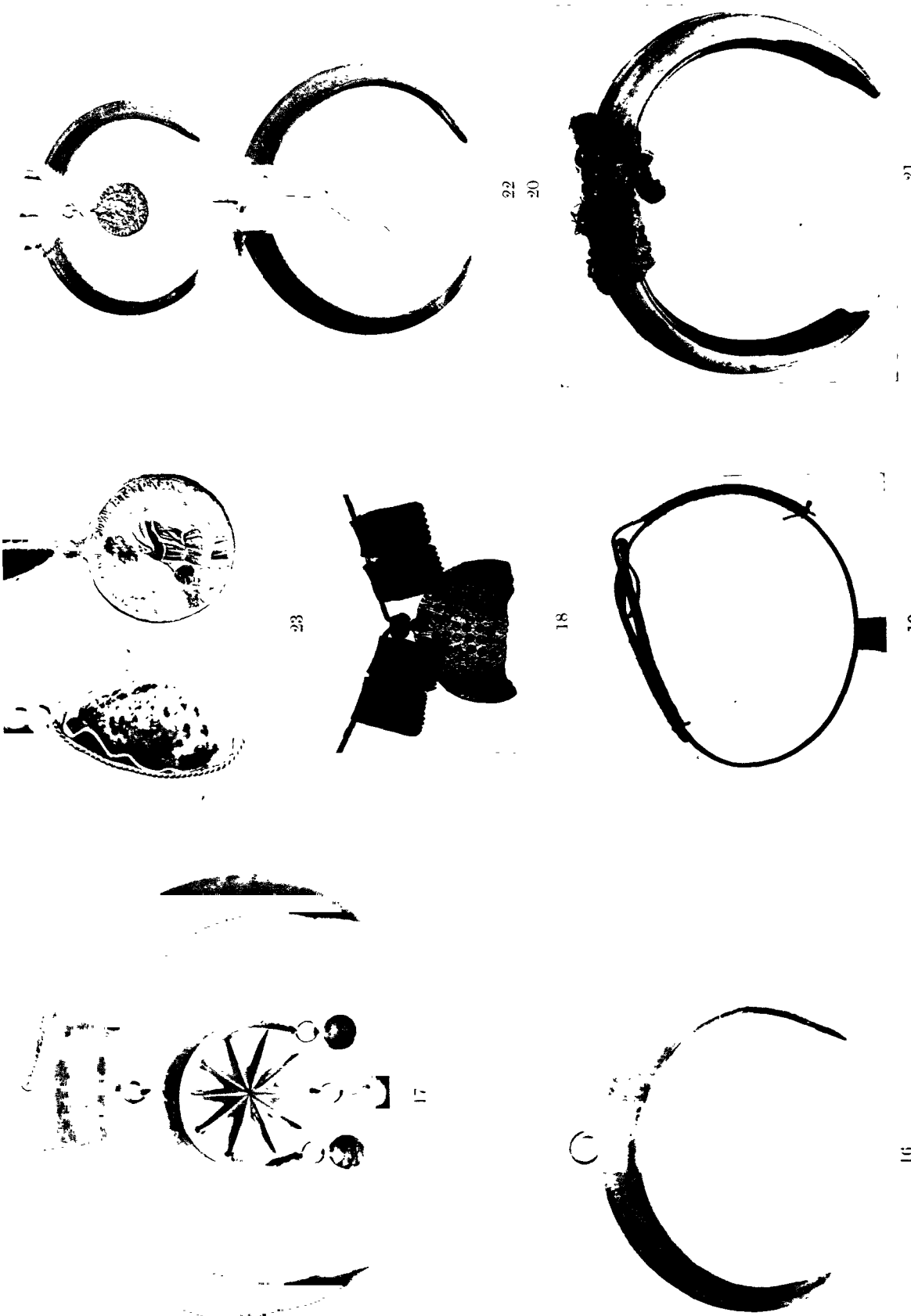

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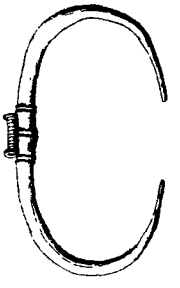

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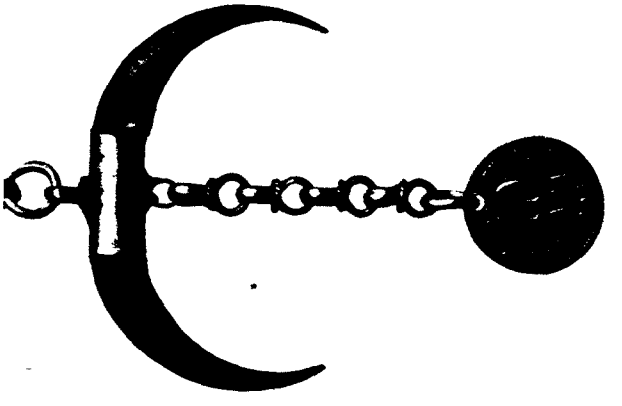

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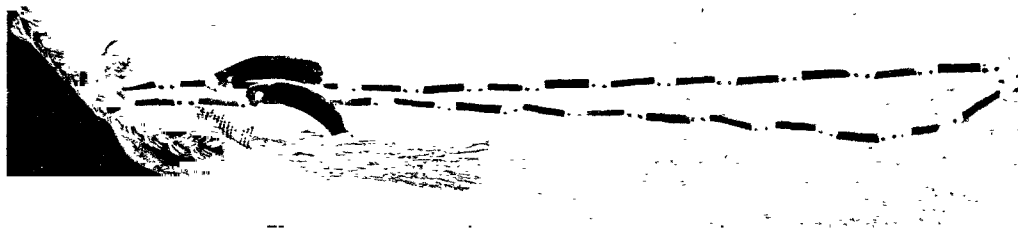

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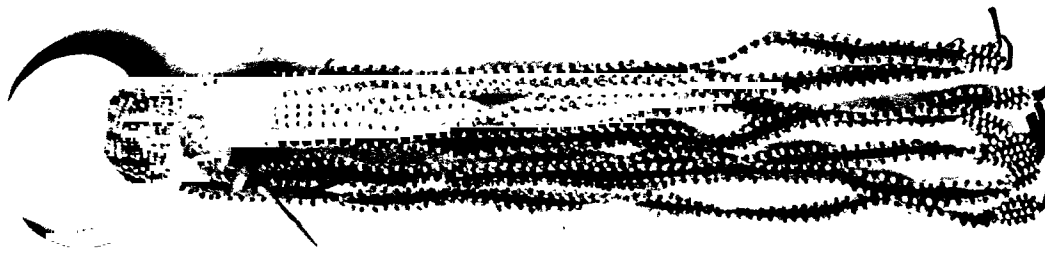

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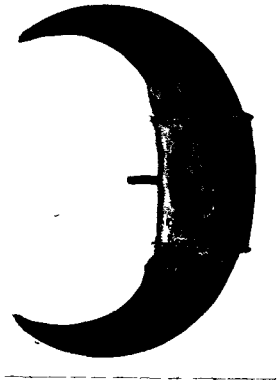

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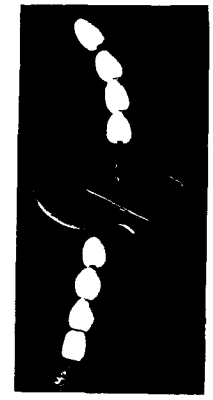

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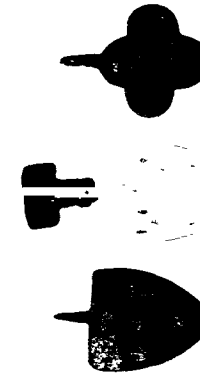

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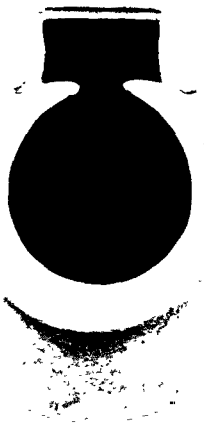

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THE ORIGIN OF THE TURKISH CRESCENT.

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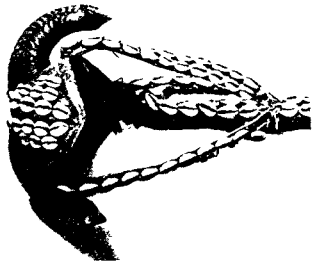

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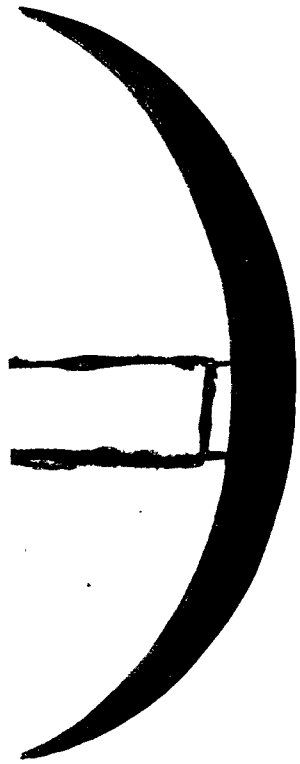

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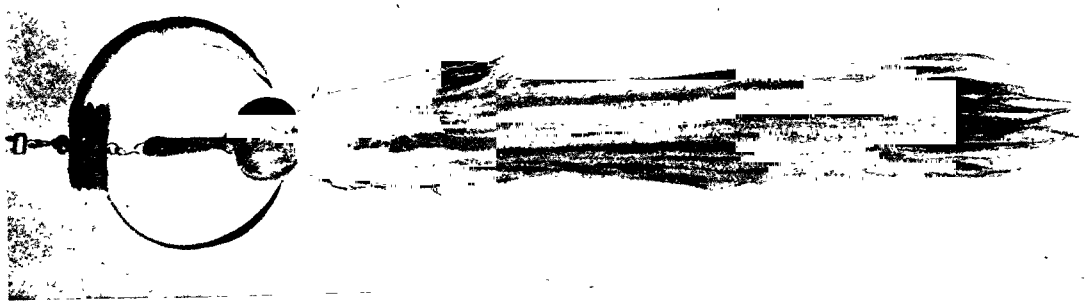

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THE ORIGIN OF THE TURKISH CRESCENT.

CHILDREN'S GAMES IN BRITISH NEW GUINEA.

By Captain F. R. Barton, C.M.G.

[With Plates XXVI–XXVIII.]

I do not think there can be any children in the world more attractive than the Papuan children, and those of the tribes who inhabit the south coast from Hall Sound to Aroma are the most attractive of any. These were the children I knew best during my eight years' residence in New Guinea, and it is the games played by them that I propose chiefly to describe. I wish it were possible to convey to my readers the pictures which I carry in my mind. But even with the help of the illustrations I can only present a wooden, lifeless set of images. The gay buoyancy of the children's laughing voices; the sinuous movements of their little brown bodies; and the exquisite suppleness of limbs—these delights to ear and eye cannot be conveyed; nor can I reproduce in words the clear crisp atmosphere—were the sun ever so hot—which glorified those sea beaches of Southern Central New Guinea day after day throughout the seven months' season of the south-east trade wind. From the middle of May to the middle of November, as sure as the rising of the sun, does the south-east wind blow. The night land-breeze dies down soon after sun-rise, and until nine in the morning there is usually a calm, then an almost imperceptible breath out of the south-east scratches catspaws upon the unruffled surface of the calm sea, and this is followed by another and another breath, each of increasing vehemence—until the sun is approaching the zenith. At mid-day the wind is positively violent, and the sea between the shore and the barrier-reef, looming like a white ribbon parallel to the coast some two or three miles away, is grown turbulent and thickly flecked with white broken wave-crests, while the long shining fronds of the coconut palms ashore lash the air with noisy frenzy. The village houses are not built on the shore: they are built on piles—a thick cluster of houses—on the shore-reef some hundred yards more or less from low water mark.

We will assume it is such a day as I have shortly described and that we are on the sandy beach opposite Gaile village. The hour is two o'clock; the wind is blowing for all it is worth; and the tide is ebbing fast. The children are leaving the village in little companies—boys and girls of ages ranging from 6 to 14—some in canoes and some wading and swimming. You cannot distinguish at a

distance the boys from the girls, except, perhaps, the two or three larger girls who may be among them, for these likely enough will not have discarded all their petticoats (*rami*). But the others are as naked as fishes. Having reached the shore you see that several of the girls are carrying netted bags. These are for the shell-fish which they are setting forth to collect on the reefs now beginning to show bare above the receding tide. Some companies go this way and some that, and we will attach ourselves to one of them. A very merry lot they are as they walk along the hard wet sand, pushing and jostling each other, and talking and laughing at the top of their voices. Soon the point is reached opposite a favourite reef-patch, some four or five hundred yards to seaward. The tide is so low that we can wade to the reef across the intervening water. But the smallest children stay behind on the beach to collect minute kinds of shell-fish from the shingle, or occasionally to join in a most exciting hunt after some small fish that has been left behind by the receding tide and isolated in a shallow pool. We will watch them for a moment and catch up the others presently. Kneeling or squatting in a row they begin scraping up the sand and shingle with their little hands, sifting it and picking out the small bivalves, which are collected in a coconut shell, or small wooden dish, and meanwhile they chant in piping voices a little song, which is as follows:—

Mini-mini ta
Kuaraboi ta.

The translation of these words is simple, for *mini mini* and *Kuaraboi* are the names of two small kinds of shell-fish, and the *ta* means one or a (the indefinite article). I wish all the game songs were as simple to understand as this one! Presently, however, I shall have to refer to a number of such songs of which the meaning is entirely lost.

Now we must catch up the other children: they have crossed deeper water and have reached a coral reef further out, where they are daintily tripping over its rough surface exploring the crannies for the quarry. As we approach them we can hear them singing in unison. But for the glad high-pitched note of their young voices, their song would sound monotonous. The burden of their song is as follows:—

Raga-raga e didi bo mai e!
Nono-nono e didi bo mai!

The interpretation of it is "*Raga-raga*—come forth from the rocks! *Nono-nono*—come forth from the rocks!"

Another rendering of this song is as follows:—

Gomata mai gui-gui
Didi mai hore-hore
Raga-raga ebuda-ebuda
Nono-nono etukere etukere.

The words of this song are translatable excepting *ebuda* and *etukere*, as :—

The tide has ebbed
The rocks are bare.
Raga-raga . . .
Nono-nono . . .

There is no joking and jostling now: they are all serious, for the song is in the nature of enchantment to draw the shell-fish from their hiding-places, and levity might break the charm. And thus they will wade together from reef to reef, until the tide has covered the bare coral expanses again, when they return to the village with their spoil, while the clear air rings again with their happy laughter all the way home.

It may be objected that these shell-fishing jaunts are not, strictly speaking, games. But I think that those of us who as children ever went a-nutting, or blackberrying, or mushroom-hunting will forgive me if I classify them as games. I have watched these Papuan children carefully and sympathetically, and I am sure that the thrill of enjoyment awoken by nutting in England and that of shell-fishing in Papua are one and the same thrills. Neither employment contributes seriously to the stocking of the larder, so surely we need not call them economical pursuits, or by some such cold name. I do not mean it to be inferred that shell-fishing by the Papuan tribes has always been mere child's-play. The huge deposits of shells on the hill-tops and at places on the islands formed by barrier-reefs, testify clearly to the fact that in bygone times the people subsisted to a great extent on shell-fish. Whether this was due to periods of famine, or to the gardens having been despoiled by enemies, there is nothing positive left to inform us. In the bygone ages of man it is almost certain, I suppose, that those tribes who lived on or near the sea-board—whether in Denmark, or Peru, or New Guinea, or elsewhere,—depended very largely upon shell-fish as an article of diet. It is one of the few sources of food-supply which can be captured without the help of any ingenious human contrivance. Shell-fish have been the salvation many a time of shipwrecked crews who have found a refuge upon desert islands. There was a time, I think, when shell-fish were as important an article of diet to certain of our ancestors as wheat-flour now is said to be to us. One does not know under what circumstances this natural source of food supply was first discovered; but I was once told by a man who had lived many years in Borneo a thing which if true seems to me to be suggestive. He told me that adjacent to the place where he was living there was a wide fringe of mangroves on the margin of the sea. And he said that at low spring tides, great troupes of monkeys were in the habit of coming to the coast from inland, and that they abode in these mangroves while the tides remained low, hunting for and gorging themselves with the shell-fish that abound there. I cannot vouch for the truth of this story, but there are few shorter ways of ascertaining the truth of a thing than that of inviting contradiction.

Before passing on to other games there are one or two other shell-fishing

songs which I must give. A small conical shell which lies buried in the sand at the bottom of secluded sea-inlets is found in New Guinea, and its Motu name is *Daka*. These shells have a sharp apex, and the method of finding them by the children (they are so small that grown-up people don't bother themselves to look for them) is to wade about in the shallow water and feel for them with their feet. These people have a verb to express feeling for a hidden thing with the feet which is *Tahumoi.*

The tide being low, one girl says to another: "*Henamo, inai gomata na vada e gui, daka ai tahumoi*" (my dear, the tide has gone out—let us feel about for *daka*). Others, perhaps, join them, and then they wade about in the sandy mud singing:—

Daka e daka e.
Oi hidibou
Lau idiou
Daka e hidibou.

I cannot give an interpretation of this song. It clearly begins with an apostrophe to the *daka*—the shell-fish—but the rest of it is incomprehensible.

The only other two shell-fishing songs of which I know the words are sung by girls when they are diving from an anchored canoe. This pastime takes place only during the calm weather which prevails at the change of the seasons. A number of girls of all ages crowd into a canoe and pole out to a submerged reef. The canoe is anchored over the reef, and then they strip off their *ramis*, and taking a hammerstone dive down to knock the clams and oysters off the sides of the coral patch. After two or three dives a girl climbs on to the canoe and squats or lies prone to warm herself in the sun when another takes up the diving. The songs sung by the girls who are thus basking are two.

1.

Vea ta nerigo, vea ta nerigi[1]
Tau dirava matana
Kokoahu lao, daehu lao.

vea = a calm by day; *nerigo* = nautilus (?)[2]; *tau* = man; *dirava* = great spirit; *matana* = his eye; *Kokoahu* = (?); *daehu* (?); *lao* = go.

2.

Butu-butu gima lele
Tauna abe lagava taune
Tauna abe e buria taune.

Butu-butu = clam; the rest of the meaning of the song is obscure, but it

[1] At Tupuseleia the first line of this song is rendered: *Vea tauke, asi tauke.*

[2] Cf. *vereverego* = nautilus, at South Cape, Bona Bona, Maiwara. Also cf. "*tandirava matana*" with *sumara matana* = eye of the moon, at Arifamu.

apparently makes reference to a man taking a deep breath, and to a man being buried. It may be that these terms refer to diving.

Hula shell-fishing song called *Kariga.*

Kariga ura Kuluria
Arigi ai pana abia
Nawale ai pana abia
Dogõ—o—o—o—o.

Kariga = sea-urchin; *gũla* = crayfish. Cf. *nawale* with *m'wale* (Dobu).

This concludes my observations as far as the collecting of shell-fish is concerned, and I now pass on to other kinds of play.

The most generally known game in British New Guinea is that of cat's cradle. I cannot speak with certainty, but I believe it to be played by the children of every tribe known to the Government. The girls and boys can all play it. As the boys approach manhood they generally forget how to make the various string figures, but I have noticed that the women as a rule have not forgotten them. The variety of figures made by the children is many and each figure has a name by which it is known. I should have liked to have made drawings of the various figures and so compared the figures known in different parts of New Guinea. But to have done so would have taken more time than I could spare from my official duties in that country; children have from time to time vied with each other to teach me some of the figures, but I found them too complicated, and had to give it up in despair. Unfortunately, therefore, I am able only to give very little information upon this interesting subject. Indeed, I can merely quote some of the names of the figures employed by the children of the Nara and Aroma tribes.

The Nara tribe is fast dying out—due to causes which would take too long to explain here. They are one of the tribes of pronounced Melanesian origin, and at some time or other after their arrival in New Guinea, they were pushed inland to the mountainous country behind Hall Sound. In after years they came down again towards the coast, and they now inhabit the rather sterile strip of country immediately to the east of Hall Sound. In their dialect, cat's cradle is called *Idara-idara.* A favourite figure is *Ovasi,* which signifies the native cucumber. They sing a song while manipulation is in progress. It is:—

Ovasi kena mai bania, nakumu bavu laia, bolosa kena mai bania.

Its translation, as far as it could be translated, was given to me as follows:—

Cucumber little I eat, your child go and look after, bolosa (a small nut-like fruit) little I eat.

Some other figures known to the Nara tribe are: (1) *lailema* = coot; (2) *belani* = dawn; (3) night; (4) sea; (5) *edo* = gecko; (6) *kauasi* = snake; (7) *uau* = (8) saltwater crayfish; (9) *olava* shark.

The following are some of the names of figures made by the children of the Aroma tribe to whom the game of cat's cradle is known as *walo-alo,* which means literally string patterns.

(1) (*a*) Bush-sun, (*b*) village sun, (*c*) night, (*d*) morning star, (*e*) dawn. These form a series, and follow one another in the order given. The figure "dawn" ends by the string suddenly being pulled out straight.
(2) *Uba* = a small house.
(3) *wai.*
(4) *waulo.*
(5) *kimo-kimo* = a kind of *taro.*
(6) *ewa* = a species of cray-fish.
(7) *begarai.*
(8) *veva-kali* = a crowd of people.
(9) *bagi-bagi* = fighting.

All the cat's cradle figures made by Papuan children are perplexingly complicated. In some cases two pairs of hands are required to evolve the patterns out of each other; but many of the most complicated series are contrived by a single child with the help of fingers, toes, and teeth. Their fingers are very deft and supple, and it is a pretty and fascinating sight to watch them at the game.

On Plate XXVI, is seen a little girl of Lese village, one of the villages at the east end of the Papuan Gulf, who showed me an amusing series of four figures representing a domestic squall. (The little girl is in mourning, as evidenced by the absence of top-knots, and by the cut of her petticoat, and by the braided garb worn across the chest.) The story is that of a man who had two wives, who quarrelled (Fig. 1). The two uprights between the horizontals represent the two wives. By a deft manipulation of the string, these uprights gradually approach each other towards the centre (Fig. 2). Having come into contact, which is cleverly shown by a suggestive flinging out of four arms, there follows a furious row (Fig. 3). The fourth figure is the arrival upon the scene of the polygamous husband, who brings about a reconciliation. Unfortunately, I only had three spare photographic plates at the time; consequently the last picture of the series is missing.

I must now pass on to other games, and will illustrate first a Motu game called *posi-pata.* It is a game played by young girls, and consists merely in tossing a small bladder into the air and then keeping it up by patting it constantly upwards with the hand. The bladders commonly used for this purpose are found washed up on the sea-beaches at certain seasons of the year, but sometimes the bladders of quadrupeds are used. (Cf. Plate XXIX, Figs. 5 and 6). While the game is in progress the following song is sung:—

Vea vea Dauko
Dauko vea lalonai
Kualahu e veria lasi—
Vaoha nani, vaoha nani,
Lebeta nani, lebeta nani—
Egu posi kuboro-kuboro.

I can give a translation of some of these words, though they do not convey much sense. The literal translation of *posi-pata* is bladder-patting.

Day calm Dauko[1]
Dauko day calm inside
Smoke (he) draws not
Sea-urchin——, sea-urchin——
. . . . . .
My bladder is globular.

Another favourite game, especially among the small boys, is known by the Motu tribe as *epi*, at Hula as *betipi*. I should think the game is, properly speaking, a boys' game, and not intended to be played by girls, though sometimes I have seen them playing it. It is a simple but vigorous game, and to be a successful player a boy must be very active. The contesting boys form two sides of even number, and take up their positions in two bodies on a sandy spot of ground some twenty yards apart. A boy from each party singles himself from the rest. The one stands firm while the other runs with increasing pace towards him. The motionless boy does not move until the approaching boy is almost up to him. He then with a quick sinuous movement and a clap of his hands leaps to one side or the other. The object of the other boy is to kick him. He cannot tell whether the stationary boy will dart to right or left, and having acquired full speed, he must kick out with this foot or the other so suddenly and so far forward that he almost always falls in the attempt, whether successful or not. No forfeiture of any kind results from falling. Each boy has his turn, and the winner is the boy who can make the greatest number of contact kicks, and avoid as often as possible being kicked when he is the object boy. The movements in this game are so rapid that I never attempted to photograph it. I collected four variants of the song belonging to the game. These include two Gaile variants, and one from Tupuseleia and one from Hula. The two Gaile ones are as follows:—

1.	2.
Aeva aeba panikete	*Aeva aeba panikete*
Moraka moraka	*Moraka moraka*
Urau eremutu	*Kurau vaia*
Ubi ubi ava roia	*Rereni so rereni so.*
Kuare roia Kuare.	

The Tupuseleia song is longer, but its original meaning is apparently the same, since the words *aeva* or *aiva*, *moraka*, and *urau*, or *kurau*, or *kurai*, are common to it and the two Gaile songs. The meaning of these songs is lost, and I am unable to hazard an interpretation of them. All I can suggest about them is that

[1] Dauko is a coral island forming part of the barrier reef off Port Moresby.

aeva is a centipede (Hula and Mailu dialects); *moraka* is a small land crab (Motu dialect); and *ura* is a crayfish (Motu). The Tupuseleia song runs thus :—

Epina epiaia
Aiva panikete
Moraka moraka
Kurai reremi to
Avara baine
Epe nese pae[1] *nese*
Uaia—hui-i-i-i.

The Hula variant of the song is :

Betipi Karena
Oreu orea
Pata pata Kaneve Kanave.[2]

The next game is called *bido-bido,* and it is played by the children of the Motu villages and at Hula.[3]

Two rows of boys and girls face each other and opposite couples lock hands in sedan-chair fashion. A small boy then projects himself prone upon the lane of hands at one end of the row, and is tossed along it by an upward and forward jerking of the locked hands to the other end, and as he passes each couple, they hurriedly run to the fore-end of the avenue and take up position as before, thus making an endless lane.

The following song is sung :—

Gaile version.	Tupuseleia version.
Bido be bido	*Bido bido lore lore*
Bado be bado	*Kinibo Kanabo*
Ana bido bido	*Daika mero vabuna e vabu*
Ana bado bado	*Bigo-si bago-si*
Ana mairi mairi.	*Gerema dubu raita dubu*
	Gose-gose vasi-o.

Hula version.

Bagula bagula vane vane
Gena vane oi oi
Moita Kele petau talia (*a pause here*)
Oi loue.

The sense of these songs is so obscure that I do not venture to suggest any. Perhaps they were never anything else but nonsense.

[1] *pae* is a freshwater crayfish (Motu).

[2] *kanave* or *anave* in several dialects means a small species of seagull, or a tern.

[3] At Hula the small boy walks upon the linked hands. The last two words in the Hula version of the song signify in the Motu dialect, "You go back," and may have reference to the constantly changing position of the linked couples. In Aroma dialect this game is called *unukorato.* (Plate XXVIII, Fig. 4, and cf. Plate XXIX, Fig. 2).

A game precisely similar to *bido-bido* is played by the children of Wanigela village in Collingwood Bay (north-east coast). There this game is called *tauf*, which means "Cuscus." I do not know whether it is accompanied there by a song.

This game is known also at Mailu, an island lying near the coast off Port Glasgow. The tribe who inhabit the opposite mainland and to the westward as far as and including Cloudy Bay, speak the same dialect, and doubtless form part of the same tribe. (Mailu is an interesting place inasmuch as it is here that we find a fusion of the curvilinear forms of ornamental design belonging to the eastern end of British New Guinea, and the angular forms belonging to the tribes of the Central District.)

The game under notice is called at Mailu *oura*. The hands are linked as already described, and the boy stands upon the first pair of hands. Then, to the accompaniment of a song, he is gently moved up and down by a lowering and raising of the hands. The song ends with a little hoot and thereupon the boy jumps to the next set of four linked hands. The song has two verses, sung alternately, and is as follows:—

1.

Abona oura duramba oura vane vane
Vane urei tau.

2.

Ena vane oi oi oi ta gewo boi tau
Boda tariena boi tau.

The next game is a Papuan version of the good old game of hide-and-seek. It is probably known to all the tribes of Melanesian origin, though I cannot find in my notes any reference to the game being played at Hula. This tribe, however, owns very little land, and that which they do own on Hood's Peninsula they only acquired by conquest about sixty or seventy years ago. They are great mariners and fishermen, and are quite out of their element ashore. As the hider in these hide-and-seek games invariably represents an animal or a bird, it may be that these fisher folk have forgotten the game.

The Motu tribe call this game *kumu-kumu*, or *magani-magani*. A boy lies prone on the ground hiding his face, and feigns sleep. The other boys playing the game go alongside him. One of these then kneels down and pats him on the back singing:—

Kumu-kumu (or kamo-kamo) tau ta wi
Avalagadi gimauine
Bamahuta tarika-tarika
Hari bunu Kamuna (pause) ini . . . . ini.[1]

All but the prone boy then run away and hide in different places. He, after

[1] The only line in this song which is comprehensible is the third line, and this means in Motu "do thou sleep soundly."

a while, arises, and his object is to find the hiding boys. Any one of these having been discovered, he is hotly pursued and makes a dash for a base which has been previously selected, and his object is to gain this base without being captured by his pursuer.

A similar game is played by the children of Wanigela village in Collingwood Bay (north-east coast). Here the game is called *koko-rerek*, signifying the Papuan domestic fowl. (This handsome breed of fowls is common in nearly all the villages on the north-east coast.)

The boys playing split up into two even sides. Those on one side all lie prone on the ground covering their faces, while the others go into hiding. The prone boys then arise and sing:

Koko-rerek o tauf gunag o.

After which one of them says in the Wanigela dialect: "The day is breaking, the roosters are crowing—let us go and seek them."

The translation of the words of the song has been given to me as follows:—

Koko-rerek = domestic fowl; *tauf* = cuscus; *gunag* = a dark-skinned variety of cuscus, or phalanger.

In Nara this hide-and-seek game is played in the following manner:—A number of boys and girls squat upon their hams in a row, slapping their knees with their hands, while they sing, in time to the slapping,

Dae aena obulo ekoia
I'alona be makau makau
I'una be makau makau
Kaito Kavato o-o
Kabara-kabara be uari-uari.

They then, one by one, form themselves into two groups, after which four from each group go away and hide, and the others at a signal rush out with a cry to find and endeavour to capture, those in hiding.

I cannot give any interpretation of the above song.

Next we will take a pretty game which is known to many tribes. It is a game played on land or in the sea. It is played in the Motu, Nara, and Aroma villages, at Mailu, at Wanigela, and at Kerema in the Gulf of Papua. I do not find a note of having seen it played at Hula, but I feel sure it is a game well known to the cheerful vigorous children of that tribe. It is a rather difficult game to explain, the movement being continuous, and, as there are at least two variants of it, viz., those of Motu and Nara, which differ considerably from each other, I shall have to explain them at some length. I will first take the Motu variant of it as played by the children of Gaile village. (Plate XXVIII, Figs. 1, 2 and 3.)

A number of boys and girls join hands and stand in a row. The two at the end of the row then move forwards and inwards and pass under the uplifted arms of numbers 3 and 4. They continue circling in the same direction and thus the

end of the chain comes round to the front of the line again and the leading child, followed by the next in the row, passes under the arched arms of numbers 4 and 5. The original row of children gradually becomes a chain circling inwards upon itself, until the whole row of children is involved. Whilst this movement is in progress they all sing the following words, and these are repeated until the last eye in the row has been threaded:—

Maneva koekeli, lokua lokua.

By this time the row has become a coil. Now they all, with the exception of four of the larger children, leave go of each other's hands, and bunch up closely, facing inwards, much after the fashion of a football scrimmage. The four exceptions stand separated outside the bunch and clap their hands to the rhythm of the following chant, which all the children sing:—

Lai e mai ao gani-gani
Mini aoma Kikido baodo
Kikido baudo oma kalia
Gia tabia gulo-gulo—bago talia.

This song being ended, the four children outside rush upon the group and endeavour to push it down, and a pushing this way and that way ensues, until the whole bunch collapses and falls submerged in the sea amidst much splashing and spluttering and screams of laughter.

The meaning of the songs which accompany this game is not definitely ascertainable—the words used being nearly all strange to the Motu dialect as spoken at present. I am inclined to think that the first part of the game represented a shoal of fish, and that the circling motion is imitative of the movements of fish in shoals. The second part of the game may represent the shoal of fish huddling together under an assault of predatory fishes or birds—the latter being represented by the four outside boys. Or the four boys may represent a circular net drawn round the shoal of fish. I make these suggestions not without diffidence, for the few words in the songs, which correspond more or less nearly with words in use at the present day, give but slender support to the suggestions. On comparing the words of lost meaning used in these Melanesian-Papuan game songs with similar words taken out of a comparative vocabulary of the Polynesian dialects, I am disposed to think that the ancestors of these immigrant Papuan tribes brought with them many Polynesian words which afterwards fell into disuse.

The Nara variant of the game just described is called *lavala,* signifying carpet-snake. The children playing—boys and girls—stand in a row and join hands:

```
1     2     3     4     5     6     7
o ——— o ——— o ——— o ——— o ——— o ——— o
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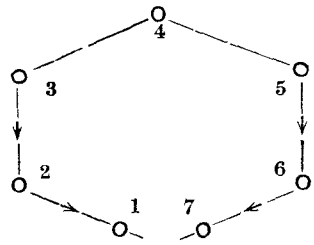
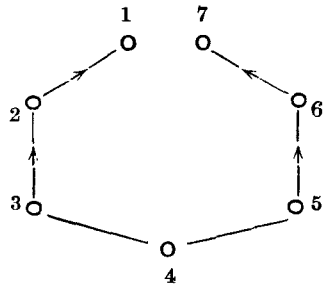
The two ends advance and circle inwards towards each other, and when they meet the two end children (1 and 7) slap each other's free hand.



They then go back to their original positions in the row and circle the other way walking backwards, and 1 and 7 again slap hands.



They all have meanwhile been singing as follows:- -

Lavala pake a ito pake
Maio ini ini moi atsio
Maio daba daba ma'atsi.

These movements finished, the children go through the in and out movements of the game as played by the Motu tribe, singing this song:

Kaduia venu-venuko
Teba nina (pause) . . . . *atsi,*

which is repeated until the movement is finished. They then resume their original positions in a row, and pull outwards from the centre till the chain breaks. This done they again line themselves up in a row, and then wind into a lump, and in such formation they all sing and jump in unison—the song being:—

Ude ude tsiau tsiau,

which they repeat several times and the game ends quickly without any climax.

I have not seen this game played at Mailu nor at Aroma, but at both places the natives have told me that it is a game well known to them. At Mailu it is called *vavira*, and at Aroma *pinu-gogo*. The words of the song which accompanies the game at Mailu were given to me as follows:—

Vaviri vaviri kai kurou (repeated *ad lib.*).

The Wanigela tribe in Collingwood Bay also play a like game in a similar manner. There it is called *mogas rivirin*, and the song is merely composed of these two words sung as follows:—

Mogas vivi vi vi vi vi (ad lib.).

At Kaipe, in the Gulf of Papua, this game is known as *ikaroa*. The word for snake, in a general sense, is *karoa*. The same game being known in Nara as *lavala*, carpet-snake, there is probably, I think, a connection in the native mind between the winding movement in the first part of the game, and the movement of a snake. This idea is, in some measure, borne out by the word *maneva* (*vide* Motu name of this game). For in the Motu dialect *neneva* is the term applied to a zigzag or wavy tatu pattern, which obviously is suggestive of a snake. Indeed, a common sea-snake is called in Motu *koko rereva*. If space and time permitted I could give further instances of words tending to corroborate this hypothesis.

The Gaile village children have a bathing song. I did not find that it had any connection with a game. The children merely gather together in a group and with only their heads above water they sing:—

Kole Kole Kouanā.
Ivili ivili Kouanā.
Ulato matana Kouanā.
Kouā Kouanā.

I am unable to suggest any meaning to these words as a whole. Singly, some of them can be made out—as for instance *ivilikou*, which is the word in Motu for a flute made of a reed. *Ulato matana* means "the maiden's eye."

I was unable to secure photographs of the next two games, as the play being of a boisterous nature does not lend itself to photography.

The first is the game called *Upamaino*. It is played by the Motu tribe and at Aroma. By the latter it is called *Walio* (megapod). A suitable sandy spot is chosen on the beach, and some girls here scrape a hole with their hands, and at the bottom of it they hide coconuts, or coconut husks. They then fill the hole with sand, and heap the top into a mound, and each girl, having armed herself with a light stick or a branch, selected because there are plenty of green ants upon it (a beast that bites most viciously), they take up their position on the mound.

The competing boys who have meanwhile been standing close by with their backs towards the girls now advance to the attack. Their object is to gain the buried coconuts, and this they can only do by first dragging the girls from the mound, and then burrowing down into the sand. But this is not so easy to accomplish, for the girls stoutly defend their mound, and belabour the boys with their sticks whenever they approach. One of the boys, watching his opportunity, will dash in and seize a girl by the legs and endeavour to pull her away; he is helped by his friends, but some of the other girls go to her assistance, and a wild scrimmage follows. Meanwhile, those boys who have held back now advance

upon the mound again, and other scrimmages result. Finally the boys capture the mound, and dig out the coconuts. Then they sing:—

Upamaino tau vabina.
Kune Kune (repeated *ad lib.*).

(The words are untranslatable.)

This game is almost too rough a one to watch with pleasure, for the boys emerge covered with bruises and abrasions. But it is played with the greatest good humour and evident enjoyment. The object of the game is probably to prove the valour of the individual boys, and I expect that the coconuts are marked in some way by which the respective girl owners can be recognised.[1]

Another rough game is that known as *Dubu dubu.* A row of boys face a row of girls, the intervening distance being some ten or fifteen yards. A mound of sand, heaped up behind either party, represents a *dubu.* Some boy or girl bolder than the others advances and dares the opposite side to capture him or her. One (or more) of the latter rush upon the mocker, who tries to evade capture by getting back to his (or her) side. The opposing sides dare not venture too near each other's ground lest they be caught. But presently a girl or a boy (as the case may be) is seized, and then a tugging match ensues, in which, perhaps, there may be half-a-dozen boys pulling at a girl's legs in one direction, and half-a-dozen girls pulling at her head and arms in the opposite direction. Great is the excitement and fun which meanwhile prevails. As soon as a captive is made—viz., dragged over one of the respective lines, he or she is placed behind the victor's mound—and a song, sung derisively with jeers and clapping of hands, is joined in by the successful side. And so the game goes on—the object being for one party to capture all their opponents. At Gaile, where I saw this game played, the one side's mound was called *Marara-dubu*, and the other side's mound *Babaka-dubu.* The song of the latter was:—

Emai dubu Babaka-dubu
Eni vaita

and the opposing side sang the same words, except that it substituted *Mavara-dubu* for *Babaka-dubu.*

To explain this game fully would take too long. Briefly it is this. Under the social system obtaining with the Motu tribe, the people of each village are split up into clans (*iduhu*) and these clans are grouped under one of the several *dubus* of that village, and the *dubus* therefore are representatives of the collected strength of so many clans. Councils of war; councils of feast-giving; and all other matters of importance affecting the clans are held on the platforms of the *dubus,* and there is a good deal of rivalry between them, especially in the matter of the inter-*dubu* food festivals—each *dubu* endeavouring to outvie the other in the prodigality of food exposed at the periodical feasts. It is this rivalry which is expressed by the game of *dubu dubu.*

[1] The Aroma people informed me that the coconuts represent the eggs in a megapod mound—the game there being named after the megapod.

There are two *Mavara-dubu* at Gaile village, but no *Babaka-dubu*. At the neighbouring village of Tupuseleia there are two *Babaka-dubu*. I am not aware whether Gaile ever possessed a *Babaka-dubu*, which subsequently became extinct or absorbed. It is not improbable.

The same game is played at Aroma and at Hula. There is also an interesting variant of it played at Wani-gela in Collingwood Bay—interesting especially because it affords a connecting link between the totem and *iduhu* systems.

The Wanigela tribe, as well as some of the Cape Nelson tribes, have bird totems. Their totems are inherited from the fathers—not from the mothers. (So also are the *iduhu* inherited in the paternal line.)

The game is called *Manubed*, signifying fish-hawk. The positions of the two opposing sides are taken up opposite each other as described in *Dubu dubu*. Then all of one side advance towards the other, which remains stationary, and say "See! the fish-hawk has caught a fish." At this they look upwards, and then the side, which has been stationary, rushes forward and endeavours to capture the members of the other side, whose object is to evade capture by regaining their boundary. If captured they become forfeit to the other side.

I must mention here that for the descriptions of the Wani-gela games I am indebted to Mr. Penny, the Anglican missionary stationed at Collingwood Bay.

I will now describe a girl's game which is known to many tribes in New Guinea. It is a quiet little game, and apparently it is without meaning of any sort. None of the children who played it, nor any of the grown-up people, could give me a vestige of an idea as to the origin of the game. But inasmuch as it is a favourite game, and one widely known, I cannot omit it. The game has three phases and it is played thus:—Four girls or more sit upon the ground in a circle facing inwards. They then place their hands as shown in the photograph (Plate XXVII, Fig. 4), each girl nipping with forefingers and thumbs the skin on the back of the hand next to her. They then move their collected hands up and down in unison to the rhythm of the following song:—

Kinimala Kinimala
Lepa lepa maloa taitu
Kepa Kepa anaurio
Melaule malare palaia.

The song finished they leave go of each other's hands and drop them limply in a heap.

PHASE 2.

The hands are placed on each other alternately, palms upwards. The girl whose one hand is at the bottom draws that hand out, and places the index finger of it with a downward pointing motion in the palm of the girl's hand which is uppermost, saying these words: *Budu budu ta ia seranai.* She then with that hand takes hold of the lobe of the ear of the girl next to her. This they each do

in turn with the result that each ear lobe is being held by another girl's hand. Then they rock backwards and forwards, to the following song:—

Ivili boto Kaia boto
I—i—i—i—i

ending with a prolonged note on *i*, and at the same time bend down and put their foreheads together. The prolonged *i*, which is uttered, ends with a merry laugh.

PHASE 3.

Each girl clasps the forefinger of her left hand in the palm of her right hand, and they place their hands thus held one upon the other. The collected hands are then moved up and down to the rhythm of this song:—

Au bada kere-kere nadi bada kere-kere
Aita-ta koroni-koroni.

At Tupuseleia the words of these songs vary somewhat from those used at Gaile, the latter being the ones just quoted. The words of the first song remain the same, but the *Budu budu*, etc., in phase 2 become

Budu budu kaia sese.

and the succeeding song in the same phase is longer, thus:—

Au auna kiaka pa
Bika bikana kiaka pa
Laro laro paiari paiari
Iviri boto kaia boto
I—i—i—i—i.

The last song is also changed to

I kove kove akove kove
Aita-ta koroni Koroni.

As far as I can make out, the words in the above songs appear to be utter nonsense.

At Hula I found that only the two first phases of this game were known. The songs were:—

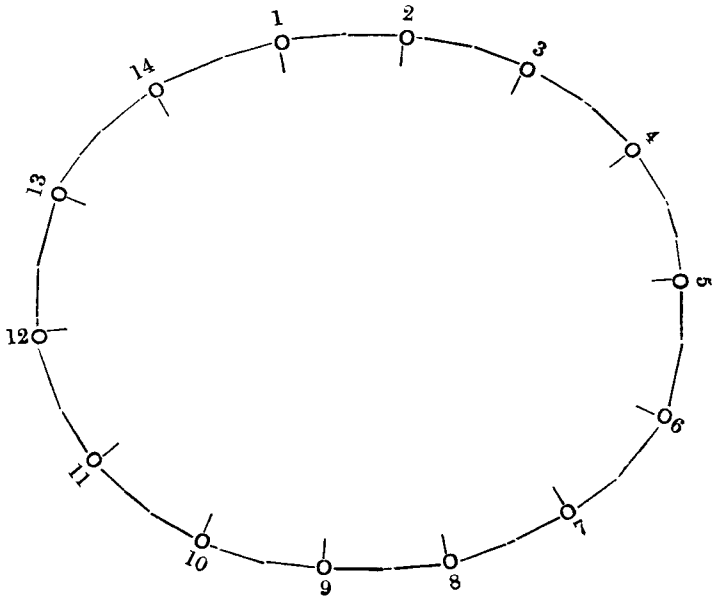
1st phase.—*Kinimale lekwa lekwa marawa*
Keta keta anagolia ne laule ne laule polaia polaia
2nd phase.—*Kapa laule laule malere ahiana gorigoana Karigamai.*

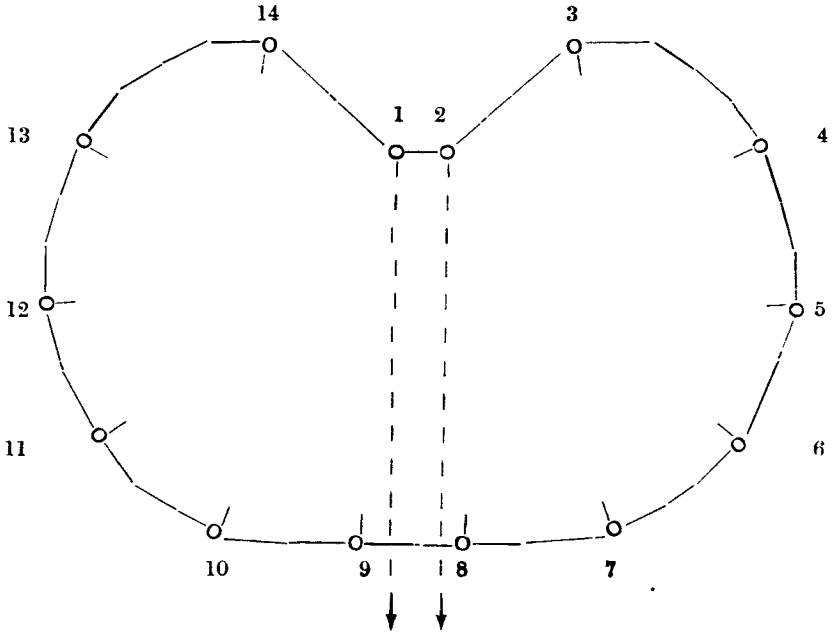
The same game is also played at Mailu and at Wanigela in Collingwood Bay.

A pretty game is played by the Motu and Hula children. By the latter it is known as *Aikini*. I regret to say that I have lost part of my notes referring to this game, and therefore can only give the song which accompanies the game.

Aikini aikini ugauve ugauve keleai
Okapu kapūna nakele kwatuana
Loa pekato, e laurio, loa pekato e laurio ekeperio
Lauri lauri kepere kepere, lauri lauri kepere kepereo

Another Hula game is called *Kwaito pino-pino.* It is a vigorous game and delightful to watch. It was always a pleasure to see the Hula children at play, they throw themselves so heartily into their games. The method of playing *Kwaito pino-pino* is this:—A number of children—boys and girls—form a circle facing inwards and holding each other's hands. I will assume there are fourteen children playing. I must describe what follows now by means of diagrams.





The third figure will be the same as the first, but the children will now be facing outwards instead of inwards. While this movement is in progress they sing or rather say:—

marugeno ara wana anakwaito
pino-pino kwaito pino-pino.

This done they begin running round with increasing velocity until at last the chain breaks with the strain, and one of the children at the broken point is sent flying off at a tangent, a flight which usually ends in a head-over-heels fall.

Another Hula game, which is also played by the Nara children, is called at Hula *Mota reremto,* and at Nara *Boroma.* At Hula the game is said to represent the enclosing of a big fish in a net, and at Nara the enclosing of a wild pig in a net. These two games are a good instance of what I alluded to earlier in this paper—viz., the tendency of a people, who, formerly a coast-tribe, are afterwards forced inland, to adapt their games and other matters and objects pertaining to their former mode of life to their new environment. Thus do fish become wild pigs and fish-hawks become horn-bills, and not infrequently the original name of an object is adopted when the transfer is made. This is an important point to remember when studying the ethnology of Papuan tribes. With the exception of the words of the song, the method of playing the game mentioned is much the same at Hula and Nara. A short description of the latter will serve for both.

The children form a circle and take a firm hold of each other's wrists with the usual linked grip. A boy squats in the middle of the circle. The circle moves slowly round the boy and the following song is sung:—

Davani ina ka eva evala
Ono paiva ni ina ka eva evala
Lania laniabenene akoimu vida.

At the end of the song the children give a musical little hoot, whereupon the boy in the centre hops on his hams and faces the opposite way. The verse is then repeated. When it is ended, they stop circling and stand fast. Then the boy stands up and charges at different parts of the circle trying to break through it. In doing so he does not make use of his hands.

This is the Hula song:—

Variva reremto mota timu
Variva timu bekulu oa waiau.

I am unable to throw any light upon the meaning of either of these two songs.

There is a rather tiresome little game played by the Nara children called *Uduve-Uduve,* which is the word given in that dialect to a kind of bush-rat.

The children stand in line one behind the other. The boys hold a strand of the girls' *ramis* and the girls hold the posteriorly hanging end of the boys' *sihi.* Two boys face each other at a short distance clasping each other's hands. The line of children slowly advances with mincing step and serpentine course, crouching, meanwhile, towards the two boys, the line passing underneath their upraised arms.

They lower their arms suddenly when the last child of the line is passing, and enclose her within them. She (or he) then passes out of the game. The line returns as before, and so they go on until all have been captured. The following song is sung throughout the game :—

Uduve uduve evana uvana
Popouda umanai kivio kivi

(*Popouda* is said to mean a small variety of dove).

It is probable, I think, that this is the survival of a more eventful game. It seems to represent the trapping of an animal. The hill-tribes who now inhabit the inland hill-country, whence the Nara tribe made their last migration, are unusually skilful in catching, in an ingeniously contrived form of trap, the bandicoots and a prodigiously large species of rat which abound there.

Another game called *Odolo* is played at Nara, which I have not found elsewhere. The word *Odolo* signifies in the Nara dialect megapod. It will be remembered that one of the games known to the Aroma tribe is called megapod, but the two games are wholly dissimilar. This Nara game consists of four phases.

1.

A number of boys and girls sit in a row upon the ground with legs parted and extended, each child's feet touching the foot of the adjoining child.

A boy and girl face the row, she on his right hand, he holding her index finger. Beginning at the right end of the row (their right), they stroke the ground backwards and forwards with their feet on each side successively of a joined pair of legs (the pair of legs being the right leg of one child, and left leg of adjoining child). Meanwhile the two stroking children sing :—

Dara odolona kadalo daloa
Bono bono odolona kadalo daloa
Odolo mai dira odolo mai dai
Murinai alona ketoto katoto
Imamuna akua au.

2.

The same children remain seated in the same row, and the boy and girl pass behind each child successively and swing their arms (his right, her left arm, hands being joined) backwards and forwards over the head of each child, singing meanwhile :—

Dai la laka kele kubuna
Oa laka kele kubuna
Oa divo divo oa dai dai
Sinane e akua, moika moika
Kamana e akua, moika moika
Ivoge avoge akua'a.

3.

The boy and girl begin at the end of the row again and lift up each child in succession by the arms and legs, the boy at the child's head, the girl at the foot, and swing him (or her) sideways, singing :—

Ono ono bido bido
Ono isi bido isi
Kelele madodo, voisi voisi.

4.

The boy and girl return to the end of the row, and lift each child in succession, he taking hold of a hand and foot of the child, and she doing the same, and swing him (or her) backwards and forwards, singing :—

Neme oini arova gena
Isia owo amu vapa'i
Lalo lalona vao dedea ania.

I do not find in my note-books any allusion as to the possible meaning of the words in the foregoing songs. I may, however, call attention to the likeness of some of the words to those sung in the Motu variants of the game called *Bido-bido.*

This completes my knowledge of what may be termed co-operative games played by the children on the South Coast of British New Guinea. Other games there are of which I find incomplete notes—too incomplete to enable me to describe them. As regards those games which I have attempted to portray, I regret that I have not been able to do more than present a rough outline sketch of them. The difficulty of ascertaining from primitive man the possible sense of his archaic songs is such that those only who have attempted it can realize. The barbarian seems unable to comprehend that they ever had a meaning. Century after century they have been repeated by rote until the words have lost form and individuality. The native cannot say with any degree of certainty where in the songs these archaic words begin and end. The difficulty is complicated by the probability of many of the words being mere nonsense. What answer should we give if a tiresome Papuan ethnologist were to enquire of one of us the sense of the words "*Fee fo fi fum!*" or of "with a hey ho roly and spinach!"

Before I conclude I must briefly enumerate a few minor games in which songs have no part—games played by children singly.

1. Wind-mill. In much the same manner as European children make a wind-mill out of paper and fasten it on the end of a stick, so do Papuan children fashion a wind-mill out of strips of coconut frond. (General).
2. Spinning a disc of shell threaded on string through a hole pierced in its centre, by winding up and then pulling tense. The shell makes a buzzing noise in spinning. (Motu.)

FIG. 1.

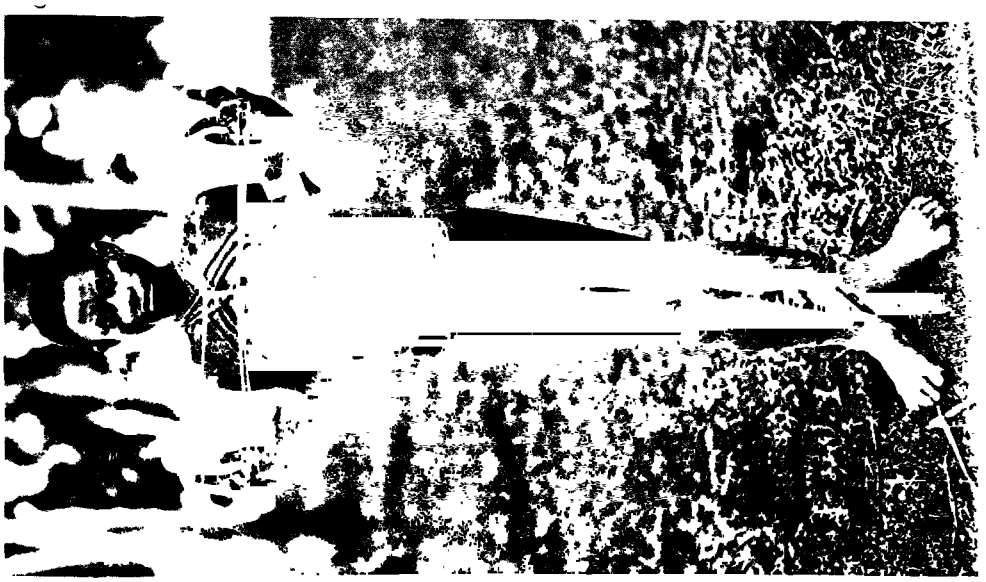


FIG. 2

STRING FIGURES.

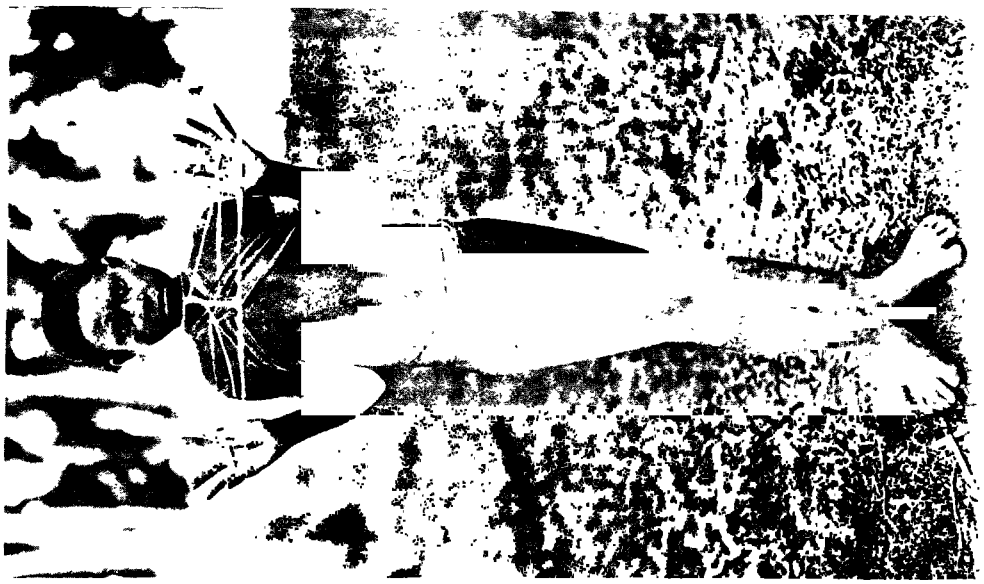


FIG. 3.

CHILDREN'S GAMES IN BRITISH NEW GUINEA.

FIG. 2. PAPUAN CHILDREN.

FIG. 4.—GIRLS' GAME.

FIG. 1.—PILE HOUSES WITH CHILDREN.

FIG. 3.—GIRLS' GAME.

CHILDREN'S GAMES IN BRITISH NEW GUINEA.

FIG. 1.—VAVIRA.

FIG. 2.—VAVIRA.

FIG. 3.—VAVIRA.

FIG. 4.—BIDO BIDO.

CHILDREN'S GAMES IN BRITISH NEW GUINEA.

3. Bounce-ball. The balls are made of the long cellular stalks of a kind of water-lily, these being wound into rough ball-shape. The elasticity of these balls is remarkable when fresh made, but is lost by degrees as the vegetable matter decays. (Aroma.)
4. Object drawing. A favourite pastime of children, who draw spirited representations of ships, animals, fish, human beings, hunting incidents, etc., with charcoal. The sides of canoes hauled up on the beaches are the surfaces usually selected to draw upon. (General.)
5. Sketching tatu marks. This is only practised by girls. For pencil they use a blunt piece of wood, and with this they trace upon their skins the marks applied in tatuing. When the skin has dried after sea bathing is the time generally selected for this pastime, the marks shewing then more distinctly.
6. Mimic dancing. Young children solemnly mimic the dancing postures of their elders, beating, meanwhile, any handy article which gives forth a sound more or less remotely resembling a drum.

INTRODUCTORY NOTES ON THE TOYS AND GAMES OF ELEMA, PAPUAN GULF.

By the Rev. J. H. Holmes,
Local Correspondent of the Royal Anthropological Institute.

Toys.

1. *Ball-tossing.*—A game common to the young people of both sexes of all the Elema tribes is ball-tossing.

The names by which the game is known amongst the respective tribes are very dissimilar, but it is interesting to note that, as far as our research has gone, the native and primitive balls used to-day in this game are probably an evolution from a more primitive ball, viz., the bladder of pigs and other animals.

The game is known to the Toaripi tribe as *ipa*, "bladder"; the Morea-ipi tribe speak of the game as *puahoa*, the term in their dialect for "bladder."

As in the dissimilarity of terms by which the game is known in Elema likewise in the make of the balls used in the game there is very little resemblance in the materials adopted. The Toaripians procure a hard nut, resembling in size and hardness the betel-nut, known as *ferehae*, which is obtained from a bastard-palm of that name, and on account of its shape and hardness it is adopted as the centre of the ball. Having procured the *ferehae*, a large number of fronds from the same species of palm, and known as *soe*, are picked and tied end to end in reef knots until the requisite length is provided.

With this primitive strapping the *ferehae* is wound tightly round and round by the boys until they have succeeded in making a ball the size and hardness they require, usually of the size of a cricket ball.

The Morea-ipi boys expend less time and trouble on the balls they make for this game, and they do not seem to attach importance to the game itself, as a season game, as do the Toaripians.

A piece of the stem of the nipa palm, when dry, of the size of a large egg, is cut out to form the centre of the ball, and this is bound tightly in dry banana leaves with the result that an unshapely ball is made.

The ball game is strictly a season game with the Toaripians, *i.e.*, they play it as a game only during the *saravera* season, that is from the end of April to the middle of June. The Morea-ipians play it at any time and never very enthusiastically.

With our present knowledge of the game as played by the respective tribes of Elema it seems unlikely that any rules are observed; the object of the players

is to keep the ball bouncing upwards as long as possible, and when it falls to the ground there is a rush for it that it may be tossed up again and kept going with a zest proportionate with the enthusiasm of the players.

2. *Apo seika.*—*Apo seika*, literally a small bow, resembles in size the toy bows used by boys in the rural districts of England. It is the ambition of all the small boys to possess a toy bow and a set of arrows. These bows and arrows are usually made by the fathers or male guardians of the boys, and a pliable wood named *para* (Toaripi), *elele* (Morea-ipi), is procured for this purpose; occasionally split bamboo may be used for the bow. The bow-string is made from a strip of the rind of rattan cane, and the arrows are usually very sharply pointed midribs from the frond of the sago palm, or, when the boy is getting a big lad and capable to make and discharge a larger arrow, a light wood is used which he whittles, with a knife—if he can get one—or an oyster shell, to the shape and size his fancy suggests.

As a small boy, and whilst he is content to use the midribs of sago palm fronds as arrows, he finds his pleasure in discharging them aimlessly, but on becoming a bigger boy he also becomes ambitious to compete with boys of his age, and sides are then formed; coconut husks are used as targets, and each boy strives to place the largest number of arrows into the target at a distance fixed by the competitors and increased as thought advisable.

This pastime gives a deal of pleasure, but it is considered by the boys to be inferior to shooting at soft objects buried in the sand. When this kind of shooting is adopted, a sweet potato or taro is buried in the sand, and the boys, standing at a given distance, aim for the hidden object; the best shot being the boy who succeeds in getting the most arrows into the buried target.

Apo seika as a game or pastime is general among the boys of all Elema tribes, but is, probably, more appreciated by the boys of the Morea-ipi tribe than by the boys of their kindred tribes; as a competitive game the Morea-ipi boys have certainly developed it in many ways unknown to, or at least, not adopted by, the boys of neighbouring tribes.

3. *Opi.*—*Opi* is the name of a hard nut which resembles in size and shape a large acorn. It is picked when green and a midrib of the frond of the coconut palm is passed perpendicularly and vertically through until about an inch of the spindle protrudes at the lower end on which the top spins. At the spinning or upper end about 6 inches of the midrib is left, thus providing sufficient to spin the *opi* or primitive top by chafing it between the palms of the hands to give it velocity.

Opi is also the Toaripi name of the game; the name by which the top and the game are known by the Morea-ipi tribe is *porohae*. Top-spinning is indulged in by the lads and young men of all the Elema tribes as a pastime for individual amusement, but it is oftener played competitively with the same object as boys have at home, viz., to ascertain whose top will spin the longest period. When played in this way, each competitor provides himself with a scraped out

piece of coconut shell in the hollow of which he spins his top. When the shells have been sufficiently scraped to provide a smooth surface, the competitors seat themselves in a row and await the signal "*ma, ma, ma!*" The significance of this monosyllable is not yet known other than as an abbreviation of *mapuso* (water), but it is daily used as a call to the pigs when the women wish them to come home to feed.

The season for top-spinning is usually from October to the end of the year among all these tribes.

4. *Ori.*—*Ori* is the name of the kite made by the Elema tribes; the same term is the general word for bird in all the dialects of these tribes.

There seems to be no fixed design or pattern of kite, the only object being to make something strong enough, yet light enough, to soar as high as wind and string will allow.

The frame-work of the kites made by the Toaripians is usually strong, thin strips of rattan cane, covered either with dressed paper-mulberry cloth or with the sheath fibre thrown off by the young palms of coconut trees.

The kite is known by the same name, *ori*, by the Morea-ipi tribe, but its frame-work is made somewhat differently; for rattan cane the midrib of the nipa palm is substituted and covered with coconut fibre, but with so little care that these kites are inferior to those made by the young men and lads of the Toaripi tribe.

The kites are provided with tails, usually a long piece of native twine with strips of dead banana leaves knotted into the twine. The kites when finished, display more ingenuity than art, and are as primitive in design as they are in construction.

Whilst the kites are made by the big lads and young men of the respective tribes, young and old of both sexes share in the pleasure and excitement of flying them when the south-east monsoon is at its strongest. The cord used for kite-flying is native made; when enthusiasm is high the kite is allowed to soar proportionately high until it gets nearly out of sight, and sometimes it is intentionally set free.

5. *Kekesi* is a toy very like the paper windmill English children play with. The boys make these themselves from pandanus leaves. [Captain Barton (p. 278) refers to this toy: I obtained one at Hula, where it is called *make*, and at Mawatta the same toy is known as *ve*.—A. C. H.]

6. *Hockey.*—A game closely resembling hockey is played by the young people of all the Elema tribes, but it is probably more highly appreciated and more skilfully played by the young people of both sexes of the Morea-ipi tribe than by any of their kindred tribes. The Toaripians name this game *tola fare toai*, literally, to hit, drive, or knock the fruit or seed of a tree which is used as a ball in this game.

The Morea-ipians name this game *kora hae koaki*, which, when translated, has the same meaning as given above, but unlike the Toaripians, they make it a season game; *i.e.*, they only play it during the north-west monsoon season, from November to the end of March, when a hard nut, in shape and size not unlike

a duck's egg, named *hia*, is obtainable. The Toaripians have no fixed season for this game, but seem to play it whenever it strikes their fancy, neither have they any particular nut associated with the game.

Another point of difference is noted in the kind of driving-sticks used in playing the game. The Toaripians use straight sticks, usually of a wood named *hauta*, and preferred for its lightness; failing this particular wood, any other light stick available is used; the Morea-ipians also prefer a light wood for their driving sticks, and always provide themselves with a wood named *koai haru*, but all their driving sticks have a curve at one end very like the wooden driver used by golfers at home.

To play the game, sides are formed, and goals are fixed, the object being to drive the ball beyond opponents' goal; this being achieved, the victors cheer lustily and the defeated side takes defeat sadly, but with sportsmanlike courage demands another game with the hope of equalising success.

No change of sides is made for the return game, and, as in most of the competitive games of these tribes, no notice seems to be taken of inequality, in size or number, of competing parties; onlookers help either side as the game progresses, generally the winning side. The Papuan will need to evolve to a much higher plane of manhood ere he can adopt the true sportsman's precept of "give and take."

7. *Toy Canoes.*—The boys of Elema derive much pleasure, during the north-west season, from making and sailing toy canoes.

These toy canoes are models of the canoes in daily use by the respective tribes of the district; hence it is that the boys of the Toaripi tribe make their toy canoes to represent the double canoes in common use by their own people, whereas the toy canoe of the Morea-ipi boys is a model of the outrigger canoe which is, by the way, of comparatively modern adoption by their tribe. The *loti vaki vaki* or *loti seika*—Toaripi names for their toy canoes—of the Toaripi boys, is a fair sample of the workmanship and skill displayed by the boys of all these tribes; their ability to imitate is marked in the manufacture of all their toys, but utter disregard for strength and durability characterises all they do as boys, and much of what they do when they become men.

The stem of the nipa palm is used for the hull of both kinds of toy canoe, double and outrigger, and is so shaped as to distinguish the bows from the stern; the upper or deck part is trimmed to make it flat, but not hollowed, and the whole of the outside is bevelled slightly from the imaginary gunwale to the keel, thus giving the hull a canoe-like appearance.

To make a double canoe, two pieces of the nipa palm stem are cut in equal lengths and skewered together, just below the deck line, but at an equal distance apart, that the desired space between the two canoes may be obtained. The hard stem of the sago palm frond is used for skewers or crosspieces, and in addition to the usual number required, according to the length of the model, to hold the two parts of the hull together, two of these skewers are put across at the stern end, so

closely as to leave only space enough between them to permit of a small piece of wood being put in to act as an automatic rudder.

A platform, of thin strips of the nipa palm stem, is laid from beam to stern, and in this platform the sago palm stems are stepped as masts, in such number as the boy builder fancies. The sails, palm fronds of any kind, are bent to the masts prior to stepping them, *i.e.*, the masts are passed longitudinally through the frond sails, consequently no binding or lashing is required.

The materials used, and the method of construction pursued in making a toy double-canoe are, in the main, the same, and almost uniformly adopted by the boys of all the Elema tribes; such differences as exist are limited to the particular model adopted.

The hull of the outrigger canoe has only one canoe, and as a toy canoe, its outrigger is not a correct copy of these canoes, as it has only one arm and a float at its far end stuck on in any fashion, whereas the outrigger canoe of daily use has much attention devoted to its outrigger, and displays much skill in native lashing.

8. *Musical toys.*—In designating these toys as "musical," it will be assumed that the writer is endeavouring to represent what they are to the Elema boys, and not what they might prove to be to a people of a higher civilisation.

These toys are few and very primitive. The most primitive is probably the mouth-organ, which is made by doubling any kind of leaf, and so placing it between the lips that the edges of the bent leaf rest on the teeth. By blowing gently outward and into the hollow of the leaf, a squealing noise is produced, or what may possibly be a musical note to the boys who produce it.

Another primitive instrument, made by the boys of all the Elema tribes, is the flute. It is made from a piece of bamboo, about 18 inches in length, and 1 inch in diameter. The interior partitions of the bamboo are forced through when the bamboo is green and soft. A hole may, or may not, be made about 2 inches from one of the ends; when it is made in that position, the performer blows into it, in much the same way as is done by more highly qualified flautists. If this hole is made, it is the only one made diametrically in the bamboo; the Elema flautist has a supreme disregard for notes other than he can produce either from the hole, when made, or from blowing into his flute at one end by so placing that end that it may have the under lip as a cushion, and the upper lip free to cover as much of the hole as he deems necessary.

He has not yet evolved to that stage of appreciation which would enable him to distinguish the respective modulations of notes, hence he has not felt the need of making any effort to produce them. The foregoing native toy instruments are made by all the lads of all the Elema tribes, but the *kavakava*—the Haura name for Jew's harp—is made by the bush tribes only of this district.

I will endeavour to describe one I have in my museum. It is made from a piece of bamboo which was carefully split in half. The half from which it was made measures, from end to end, 11¼ inches. Its diameter is 1½ inches.

At one end which, for convenience of description, we will term its "intact end" (for such it is apart from a hole in it, to which we shall ultimately refer, and a few scratches by way of ornamentation or sign of ownership), a length of 1¾ inches has been reserved, and from it the medial line seems to have been carefully traced to the other end of the bamboo. This medial line, proceeding from the intact end, is maintained to within an inch of the other end and cut off. From the intact end continuous fissures are made at equal distances along the remaining length of the bamboo, until the medial line is left as a tongue.

In appearance this primitive musical toy closely resembles an old-time fork of three prongs, having its outer prongs of equal widths and lengths, and its centre prong shorter and a shade narrower at its wider end and at the other end tapered to a point.

Through the hole in the intact end a piece of string, after being knotted at one end, is passed. With this twisted around his thumb and the other end of the instrument, with its hollow side inwards, placed horizontally between the performer's lips, by rapid twitching and jerking of the string a vibration of the tongue is produced and with it a sound not unlike that which comes from toy jews-harps at home.

Games.

If the children of Elema have not many toys, they certainly have an almost exhaustless stock of games, but we can only select a few from their stock for this paper.

1. *Ikaroa.*—*Ikaroa* is the generic name for snakes in all the dialects of the *Ipi* tribes of Elema.

Boys and girls play this game together. A ring is formed by the players joining hands after it has been duly arranged that the boys and girls are equally and alternately placed that each one in the game has a partner of the opposite sex. The ring being thus formed, one of the party begins to chant the following words in which all present join :—

"*Ikaroa uki lailai makeko,*
Seuseu haro, seuseu makeko,
Ua sisi, mako sisi, ikaroa."

Whilst chanting these lines in a monotone, the party swing their locked hands forward and backward until the last word is chanted, when they quickly release hands, change partners, re-form the ring, and proceed again as above described.

No one seems able to translate these lines, notwithstanding many of the words are in every-day use.

2. *Hohore.*—*Hohore* is the name of the Toaripi game of "hide and seek," which is played by the children of all the Elema tribes much in the same way as it is played by children at home. Two sides may be formed, one to hide, the other to seek, or it may be played by blindfolding one of the party as "blind-man's buff" is played at home.

When the latter form of the game is played, it is usual to begin chanting whilst the individual is being blindfolded and to continue the chant "*hohore mora keikei; mai keikei hohore,*" until the object is found.

3. *Helau heleiki vie* is the Morea-ipi name of a game played by the small children of both sexes of this tribe, also by the children of all the *ipi* tribes of Elema, but known by different names by the respective tribes. With our present limited knowledge of child-life in the Gulf of Papua, this pastime, played during the north-west season, is quite unintelligible to us and unlike any game with which we are acquainted, but it affords the children of Elema amusement and delight difficult to describe on paper.

Prior to playing it, a table or stand is made on the beach. It has four legs, sticks about an inch in diameter, which are driven into the sand a depth of about 6 inches. About an inch down from the upper ends of these legs, cross sticks are lashed, and on this skeleton frame-work strips of sago bark are placed; the structure thus completed stands about 3 feet high, 4 feet long and 2½ feet wide.

The game itself takes the form of an unintelligible dramatic display. Little boys and girls take up their positions about the table and begin to dance, sway their bodies to and fro, and chant the following words:—

"*Auaua lei tiri maula,*
Tivara, tivara tarapove,
Tari vaiva ivavuku terotero,
Tati vaiva ta, tati vaiva ta."

Whilst swaying their bodies sideways and chanting the above lines, the little girls take in their hands the front part of their grass petticoats and flounce it continuously forward and backward; whereas the little boys content themselves with chanting and swaying their bodies and gesticulating with their hands.

The significance of this game is not known to the children or to the parents; the words of the chant do not give a satisfactory clue, but a fuller acquaintance with the dialect of the Morea-ipi tribe may yet enable us to trace in it a valuable bit of unwritten native history.

4. *Swings.*—No pastime affords greater pleasure to the lads and young men of Elema than the swing, and unlike many of their pastimes, it is practised alike by the *ipi* tribes on the coast and the *au*, *u* and *ra* tribes of the Elema hinterland. In every case the common object is gained, viz., the excitement derived from swinging through space, but the construction of these primitive swings is interesting and illustrative of the evolution of the swing.

The most primitive type of swing yet known to us in Elema is the one used by the Opau tribe residing a few miles inland of Kerema Bay.

A coconut tree or any other tree which overhangs a river or creek, is selected, and to it, at a considerable height from the ground, one end of a large and strong piece of rattan cane is suspended that its lower end may reach down about 3 feet from the ground. The swing is then complete and the excitement begins.

The *ikauka* or swing of the Morea-ipi tribe, residing at Orokolo, is a slight

improvement on the above. Two trees, having a considerable lean toward one another, are selected, and, at a good height from the ground, a length of strong rattan cane is carefully tied to each of the two trees, at such a distance apart that when suspended the respective lengths are comfortably near one another at the lower end to avoid any inconvenience when being used as a swing.

The Opau lads, when swinging, set themselves going; not so with the Morea-ipi lads. They take it in turns to give a send-off, and in this way; the individual, who has established his claim to the next swing by being first to seize the ends of the rattan cane, asks someone to give him a send-off, in other words one of the party stands between the suspended lengths of the rattan cane, crosses his arms by resting each elbow in the palms of opposite hand, so that his crossed arms may reach just below his chest. The send-off being taken from this human pedestal, the individual swings forward and backward with increasing velocity until he thinks he has attained sufficient force or rapidity to enable him, on the forward swing, to jump off and toe a mark beyond that made by his compeers.

The *peroki*, or swing of the Toaripians, so closely resembles the swing seen in local tea-gardens at home, that one may be inclined to think that the idea of its construction must have been taken from the suggestions of a foreigner, but the natives claim it as being their own from time immemorial.

The Toaripians require only one tree having a considerable lean over as, just above the bend of the tree, they lash horizontally a strong piece of wood. To this horizontal arm, about midway, they suspend the rattan cane by making a kind of noose knot, so that the cane, when suspended, may be in equal lengths. A seat or platform is then provided by placing the ends of the cane through the respective holes—bored about 6 inches from each end of the seat—of a piece of flat wood previously obtained and bored for this purpose. To secure the seat the ends of the cane, if long enough, are knotted, failing that, they are split, brought up over the seat at opposite angles and spliced to the main lengths.

In swinging, the Toaripians stand or sit on the seat, but with them, as with the Morea-ipians, the competitive spirit dominates, and each individual tries to make the longest jump from the swing when it is going at its swiftest.

5. *Asi.*—A large number of boys is needed to play this game properly, and they should be of varying height, so that the tall boys in the middle may easily be seen above the small boys of the outer circle. The arms of the boys are interlocked in such a way that when several of the boys wish to push in a particular direction they can combine their strength for that purpose. When all is ready, one boy, who acts as captain, sings out, "Look out! here comes a westerly squall." At that moment all the boys on the west line of the circle push with all their might. If they succeed in causing the opposite line to roll over, they claim that the westerly squall has wrecked the canoe. If they weather the westerly squall, the captain shouts, "Here is a south-east wind." And so they go on till they determine which is the strongest party on the *asi*, or canoe.

6. *Isukakaroai.*—This is really a contest of diving and swimming under water.

Two sides are formed and the best swimmer under water of one side dives first; he has if possible to swim beyond the line of the other side. If he fails the best man of the opposing side makes the attempt, and so it goes on till the best side wins.

7. *Koa* is a game played only by very small children; having made pinnacles of sand on the beach, they make sand-balls and knock them over. [At *Hula* I saw small children making erections of sand on the beach.—A. C. H.]

8. *Lavi.*—This game is played in two ways: (1) as described by the late Rev. J. Chalmers in *Pioneering in New Guinea* (p. 183). (2) A number of boys stand with bent backs in a long line, the second boy having his hands on the shoulders of the first, and so on to the end of the line. The fun comes in when the end boy has to climb on the back of the one in front and walk erect along the line of arched backs without falling off. If he succeeds he escapes being walked over. So it goes on till the boys are tired or the game is played out.

9. *Muru.*—This game represents a woman going to her stack to get wood, and in doing so she is attacked by ants. A number of boys place their hands one on the other so as to form a stack of hands. This game is always played near to women's quarters, and there never fails a woman with a heart young enough to join in and give the boys pleasure. The stack of hands being raised the woman goes to get wood, and pulls at one or two hands, remarking what a grand pile of wood she has. Suddenly all the hands are freed, and the youngsters jump, buzz, and climb on the woman's back, and she escapes the best way she can, screaming, and shrieking that the ants are attacking her.

The foregoing notes on "Toys and Games of Elema" embrace all the toys known to the children of Elema, but they have a score or more of games which, for lack of time and a limited knowledge of the same, I am unable to include in this paper.

NOTES ON CHILDREN'S GAMES IN BRITISH NEW GUINEA.

By A. C. Haddon.

[With Plate XXIX.]

It is with some diffidence that I offer the following supplement to Captain Barton's paper (*supra* p. 259), as my knowledge of British New Guinea is so very much less than his, and the time I spent on the mainland was so extremely limited. Through the kindness of Mr. S. H. Ray I am enabled to add his observations on games, *korio*, played by children at Saguane, Kiwai Island. The records of the songs of the games were made mainly by Mr. Ray, and the translations are entirely due to him. The latter naturally are quite tentative, and are the best he could accomplish under the circumstances. He recognised at the time that some of the words were very obscure, and that the natives themselves did not appear to understand them. I have thought it best to publish all the games written in my note books, although some are mentioned by Captain Barton, and I have added all our songs, which were written down according to the best of our ability at the time; where discrepancies occur from Captain Barton's versions, we bow to his superior knowledge.

A number of Motu and Motumotu games are very briefly described by the late Rev. James Chalmers in *Pioneering in New Guinea* (1887) pp. 182–184. Most of the games described below were mentioned in *Head-Hunters, Black, White and Brown*, 1901. One or two of the games have English parallels.

Linear games.—A large number of boys form a line by clasping the wrists of their neighbours. One end then swings round, and the front boy, followed by all the others, passes between and under the arms of the two boys of the other end, each pair of boys is threaded in this way in succession, when this was finished the order was reversed (Veifaa, in the Mekeo District).

Mr. Ray saw a variant at Saguane, Kiwai Island, which is called *Parea* (? "Sea snake"). A number of boys stand in a line holding hands, the first boy twists himself under his own left arm and the right arm of the second boy, he then passes between boys two and three and number two twists himself round. Boys one and two then pass between boys three and four, the former of whom twists round in his turn and so on, thus winding up the line. When this is finished they unwind. All the time they sing:

Doropi woti.—Body twists.
Doropi dramido.—Body swims.

Also at Veifaa there is a game something like our "Oranges and Lemons." Two children stand opposite one another and join hands, holding them up very

high. The object is to cut off the last of a string of children who run round and through the arch.

Ring games.—At Hula we saw a number of boys form a circle by catching hold of each other's hands, facing inwards. Two of them run into the circle and under the arms of two other boys; when all the others have done the same the last two twist themselves under their own arms and the circle is now complete again, but all the boys face outwards. They then revolve sideways as fast as they can, gradually accelerating their speed till one boy tumbles down.

During this game they sing:

Maru gĕno o ana
Kwaito o pinupinu o
Kwaito pinupinu ai!

The first phase of this game is called *Maki*, and the second *Kwaito pinupinu*. The first word may be connected with *kwado*, "make holes"; the second is "grub up" (as a pig). This game is also described by Captain Barton (p. 275).

A variant of the second phase of this game was observed by Mr. Ray at Saguane. It is called *Keregediuti*, "falling." A number of boys form a ring, all facing outwards and holding each other by their upper arms. They swing round and round, and pull till the ring breaks.

Mr. Ray describes a game called *Otara-oriboa* at Saguane. Two players are enclosed within a ring of boys. One of the central boys is blindfolded and has to catch the other boy who may not escape out of the ring.

Wheel games.—Four boys lie at full length on the ground at right angles to one another, so as to form a cross with their feet touching; usually they place a large piece of the husk of a coconut in the centre against which they tightly press their feet. A small boy crouches on their feet. Four other boys stand between those lying down; they catch hold of their hands, this raises the arms and bodies of the latter. The standing boys walk round and round (clockwise), and the whole contrivance revolves like a four-spoked wheel. This is called *Makĕ gegelaki* at Hula, where I only saw boys playing it, but at Yule Island it was played by boys and girls. (Plate XXIX, Fig. 1.)

A very simple version of this game was seen at Veifaa. Two boys took hold of each other's hands and, putting their feet together, lent backwards and then turned round and round.

Another revolving game played at Hula is called *Rapurapu*. Four boys sit on the ground and interlock their legs in the form of a square in such a way that the instep of the right foot hooks over the pit of the knee of the boy to the right. They then stand up and hop round and round on the left foot, clapping their hands rhythmically and singing:—

Rapu rapu tabai manu
Roroiatĕ atĕ atĕ
Roroiatĕ bada raita
Eaiimo eai eaiimo

Balancing games.—At Hula and Elevara we saw the game mentioned by Captain Barton in footnote 3, p. 266. (Plate XXIX, Fig. 2.) For this game I obtained the name of *Evanena.* We saw the similar game, in which the boy lies down and is jerked forward, at Elevara, where it was called *Omoro,* or "frog." Mr. Ray also saw this game played at Saguane where it is called *Mere keremeberetsi,* "boy-throwing." These, and most of the other games here recorded, were published by me in *Head-Hunters, Black, White and Brown* (1901, pp. 224–231, and *cf.* Index, "Games").

Another balancing game is played at Elevara and Yule Island by a number of boys standing very closely together, one in front of the other, so as to form a line; each places his hands on the shoulders of the boy in front, the arms and body being flexed. A boy is hoisted on to the shoulders of the last one of the line, and he has to walk on the shoulders of the boys in front; he is supported by a boy who walks on each side of him. I believe there is a variant in which the boy walks on the other boys' heads.

At Veifaa we saw boys walking on their hands, head downwards. Standing on the head is called *Upu* at Hula.

Nama, or walking on the hands and feet, face upwards, was seen at Hula.

In a game called *Ulakai koriragi* (*kereragi* = "hanging") at Hula, the boy lies on the ground, full length on his back, and makes himself perfectly rigid. A number of other boys stand all round him facing outwards. They then whistle, turn round, and lift up the recumbent boy with their index fingers.

Somersault.—At Yule Island two boys took hold of each other's arms as in *Evanena* (the "King's Chair" of our children). A third boy poked his head through the central square from above and was turned in a somersault by a bystander.

The game called *Ala rari* is played as follows at Hula. Two boys face one another and securely grip each other's arms, thus forming a parallel bar. Another boy swarms over and under the arms without touching the ground.

Leap-frog, called *Keworina* at Hula, and *Krepeduai,* "jumping up" or "shooting," at Saguane. A row of boys stand in a line, some distance apart, on their hands and feet, the last boy leaps over the others in succession, putting his hands on their backs in the usual way. He then takes his place in front of the others and the new "last man" follows. This appears to be a very widely-spread game. In Korea and Japan it is called "Jumping over," and the same attitude "on-all-fours" is there taken as in New Guinea.

Along with the foregoing Games of Agility may be placed the following:—

Pĕkĕkau, Pig-a-back; *Kaikai,* Hopping; *Puri,* Jumping; and Skipping; which were seen at Hula.

Wahoro is a game in which children jump about in a squatting position and flap their chests (Elevara).

Games of strength—*Mota ĕrĕmpto,* is thus played at Hula. A number of boys stand in a circle, each boy catching hold of his neighbours' wrists. One boy stands in the centre with arms folded over his chest.

The encircling boys sing :—

Mota ĕrĕmto ĕrĕmto
Bariva dĕrĕmto dĕrĕmto
Mota tim
Bariba tim
Pekuluoa waiau o !

This sounds like a challenge, and immediately the rhyme is finished, the central boy rushes at the joined hands of any two boys and tries to burst through. The game is finished when he succeeds. On p. 276 Captain Barton records this game which he found at Nara ; we failed on enquiry to find it on Yule Island.

Mr. Ray noted a somewhat similar game at Saguane which is called by the expressive name of *Sioro boromoro,* " dog, pig." A number of boys stand in a ring holding each other by the hand. The boy inside, the " dog," has to catch a boy, the " pig," who is outside the ring, by breaking through it. Mr. Ray draws attention to the resemblance of this game to our " Cat and Mouse." It is similar to the game variously termed " Bull in the Park," " Bull in the Barn," " Pig in the Middle." (*Cf.* A. B. Gomme, *Traditional Games,* i, 1894, p. 50.)

We saw the following game played at Veifaa. Four boys clasped hands forming a circle round a number of other boys. These attempted to break through ; when they escaped they were chased and, if possible, captured.

At Elevara boys play at Tug-of-War ; they form a long line by clasping each other by the wrist or arm and then the ends pull in opposite directions.

Mr. Ray saw a novel variant at Saguane called *Otaroro wamuda durudo.* A long thick bamboo is placed on the ground, and pairs of boys sit on the ground facing each other ; they place their feet and hands on the bamboo and then pull.

Games of endurance.—At Hula we saw boys sitting on the ground with flexed legs bending back their great toes with the index and middle fingers. This somewhat futile amusement is called *Lopia* at Saguane. Mr. Ray saw a boy lifted on a stick, clinging by his hands and feet, body downwards ; this is called *Otaririro oriboa.*

We saw at Hula a game I find it difficult to class. Two boys clasp hands, a third boy puts his leg over the joined hands, and they all walk about.

A boy is swung lengthwise by two boys, each of whom holds an arm and a leg, and the following song is sung :—

Koroa auripuna, koroa auripuna
Ătatoina nunupe nanape daunaiio
Derewanaio aro deladelakau
Bue kemoka kemokemokau.

Guessing games.—Mr. Ray records a boys' game at Saguane called *Korosora.* A ring is formed, by holding hands, around a blindfolded boy, who has to catch one of the ring. The ring moves round and away from the player in the centre, who has to catch one of the ring and guess his name ; if he fails in naming the boy the ring re-forms. The player whose name is correctly guessed is blindfolded in his turn.

Another guessing game seen by Mr. Ray, also at Saguane, is called *Sipi.* He thinks, from a remark made by the late Rev. James Chalmers and the similarity of the name and game, that this game is introduced, being a variation of "Hunt the Slipper."

A row of boys sit on the ground one behind the other with strongly flexed knees, the feet of each boy being by the loins of the boy in front, and his hands are placed between his legs. An outside player passes along the line apparently giving some small article to each of the sitters, but in reality only giving one object to a single boy. Another outsider has to find the object. After each guess the last boy goes in front. Perhaps this game would be better classed as a "Hide and find game."

Games of hide and find.—Mr. J. Bruce, of Murray Island, informed me of a game that is called *Nem deraimer*, or "Louse searching." It is played by men and women. Two sides are arranged, and they all kneel in a circle on the sand. One person, who is blindfolded, puts his head down and one of the other side picks from his head a louse, which is then hidden in the sand in the centre of the circle. All the players begin to sing and beat the ground with their hands, except the man from whose head the louse was taken, whose business it now is to search for it. If he succeeds in finding it one from the other side has to put his head down and do the searching. Should the man fail to find the louse one of the other side shows it to him and his side has to remain in until some one has been successful in the search. The one who finds the louse eats it.

A variant is called *Pone deraimer*, or "Eye searching," the crystalline lens of a fish is hidden in the sand instead of a louse.

A somewhat similar game is played in Korea, where a small object is hid in the ground; it is there called "Corpse searching." "Thing hiding" is a popular game in Japan.

Both sexes play a game by the light of the full moon in which food is hidden in the bush for others to find. I saw this game played in Murray Island in 1889.

Hunting games.—At Veifaa I saw boys playing games that mimicked the hunting expeditions of their fathers, a pig hunt and a kangaroo drive were very realistically acted.

The "kangaroos" jumped about on the grass and some hid under bushes, they were stalked and surrounded by "men," a rush was made and the flying kangaroos were chased all over the ground, man and kangaroo would tumble about in close embrace, the latter giving characteristic vigorous backward kicks with his legs.

The "pigs" walked about on all fours—hands and feet, and were chased by "men" with sticks to represent spears. When the men came close to the pigs, the latter jerked their heads sideways with an upward movement, as if trying to rip up the men with their tusks. The pig was eventually captured, and two men brought a pole, and the pig clasped it with his hands and hooked his knees over it, his body hanging down, and so, like a tied-up pig, he was carried to a place where some boys had laid sticks across one another to represent a fire. The pig was placed on this amid much laughter.

Games mimicking ceremonies.—At Veifaa a number of children played their games for us to witness, and towards the end of the afternoon several boys absented themselves for some time, and when they returned they presented a remarkable appearance. They had bound round their bodies and limbs strips of green or sere banana leaves, and looked for all the world like miniature knights of old in leafy armour; the head was entirely covered, the leaves in some cases being prolonged above into a long spike, flaps hung down from all the head-pieces like frilled capes. One or two boys had a fringe round the waist, and all had leaves radiating from their ankles which gave them a very curious appearance. Usually the hands were swathed in green bands, and in some the bandaging of the right arm was continued on to a stick held in the hand, so that the whole was continuously swathed.

The boys thus grotesquely accoutred chased the girls about and made them scream. The naughty little fellows were, as a matter of fact, mimicking the *fulaari.*

We were informed that in this district of British New Guinea the villages are divided into two main communities, each with its own chief, one is the usual head man, the other is the *afu* (or tabu) chief. It is his business to put *afu* on coconuts, areca-nuts, etc., if he sees signs of failing crops. Members of the other community than that to which the *afu* chief belongs, have the responsibility of seeing that the *afu* is observed, and some fourteen or fifteen men called *fulaari* constitute a sort of constabulary, and every evening they go round the village armed with clubs and disguised with masks, or covered up with leaves so as to be unrecognisable. At Waima all the enforcers of a tabu wear masks attached to enormous cloaks of leaves; at Inawi and Veifaa they paint the face and cover up part of the body, but they sometimes wear masks; at Aipiana they cover over the whole body with leaves, as the boys did at Veifaa.

Very important and sacred ceremonies, mainly connected with the initiation of lads into manhood, and other functions relating to the social and religious life of the men are conducted in secluded areas in Torres Straits. Among the Western Tribes these sacred spots are called *kwod,* and they are tabued to women, children and all non-initiates. There is a peculiarly interesting *kwod* in Yam Island, in which were the only totem-shrines I have come across; in the same island I was shown a spot in the scrub where the small boys used to play at *kwod,* and they had collected little heaps of clam and other shells, some of which they had also painted red, in imitation of the plain and ruddled shells that form so conspicuous a feature in the *kwod* of the men.

Game of divination. *Koko.*—This is a game that is played by girls only. They plait coconut leaves into a basket-like head-dress, which they further decorate with gaily coloured leaves and flowers, or they may simply twine leaves or vines round their heads like a garland. They rush into shallow water, and as they form into line, each one places her hand on the shoulder of the girl in front of her, and they repeatedly sing *Koko koko kaip wageb,* keeping time to the music by bobbing their heads up and down. *Koko* literally means "to carry on the back," like the way a mother

carries her child. *Kaip* is a small bivalve mollusc used for scraping food, etc., *wageb* is a larger shell that comes from New Guinea, and is used for similar purposes.

After the girls have finished promenading and splashing in the water, they return to the sand-beach and sit down in a ring; each takes a small piece of charcoal in each hand, and then pushes her hands backwards and forwards in the sand, singing all the while *Kegu bamu gared gep. Keg* is charcoal; I could not discover any meaning for the other words. The girls then withdrew their hands from the sand, and holding them up examine the palms, which are likely to be streaked by the charcoal and by chalky particles in the coral strand. If the charcoal leaves two marks on the palm of the hand, they say, " Ah ! *Keg* has killed a man." They then begin again.

Round singing games.—The following is the version I recorded of the game described by Captain Barton on pp. 273, 274.

Korikini.—A number of children sit in a circle very close together; each holds the index finger of his hands upwards closing the thumb and other fingers, with one hand he clasps the index finger of his other hand or that of another child's; by this means a column of hands is made, the uppermost having its index finger pointing upwards. One child who has his right hand disengaged taps the uppermost index finger transversely—all singing :—

Korikini	*korikini*	*kapa*	*rauriraurі*	*mariri*	*ariana*
Stick up finger	(ditto)		crossing	look at	look

Korikoana	*karigamu*	*ai*
Take away finger	your armpit	in

The uppermost hand is then removed and placed under the armpit of the same side, when all have their hands under their armpits, the same child gently scratches each hand in rotation while singing :—

Pika pika kiaka pa
Gaule aule kaika pa

Kinimale.—The players sit very close together and pinch up the skin of the back of each other's hands—the slightly flexed hands being placed one on the top of the other—the whole column is swayed up and down to the following song :—

Kinimale kinimale
Pinch flesh (ditto)
Lekwalekwa malawa
Loose it (name of a yam)
Ketaketa ana olio
(name of a yam) run
Malauli malauli polaia polai
Baby baby yellow

Another version given to Mr. Ray by Kima was: *Kinimale kinimale lekwalekwa malawa kaita* (yam) *keipakeipa* (one only) *ana olio melauli melauli poloia.*

Toitoi.—When this is finished the top hand is placed palm uppermost with extended fingers at the bottom of the column. The song is repeated until all the hands are placed one on the top of the other. Sometimes the two hands of a player are placed side by side, the others being placed on the top of these, all the hands are then raised up and down. One child with a disengaged hand gently taps the uppermost hand three times with the index finger holding it vertically downwards and sings:—

Toitoi o tutum
Three times tap
Keanai nunapakau
Ear his in hold him

At the end of the refrain the tapped hand is removed, and the nearest ear of the next player is held by it. When all the hands are released, and all the ears are held, the players swing forwards and backwards, pull the ears hard and sing:—

Mekeri aria
Pull one another
Kiko aria

This continues until one of the players gives in. (Plate XXIX, Figs. 3 and 4.)

The words for the ear-pulling may apparently be varied, as some children once sang:—

Wapuri poto
Kaia poto i i i

In one form of the game the hand that is tapped, and thereby released, clutches hold of the hair of the neighbouring child; finally both the hands of each child grasp the hair of the child on each side, and the bodies sway forwards and backwards. The words sung are:—

Vegoli kini ketoketo
Hold pluck

Mr. Ray saw the *Korikini* game played at Saguane, where it is called *Kuke.* We could not discover this series of games on Yule Island.

Dr. Walter Roth in *Bulletin,* No. 4, of his very valuable monograph on *North Queensland Ethnography* (Brisbane, 1902), describes analogous games from Cooktown, Cape Bedford, and the McIvor River. One is an imitative search for honey, in one phase of which all the cupped hands rest on one another. Another, which represents "catching cockatoos," begins with the first phase of *Korikini.* The indices in this game "represent cockatoos sitting one above the other on a branch of a tree," but the subsequent phases are different. A somewhat similar game from the lower Tully River represents a bean tree, and each hand a bean; the latter are gathered in rotation by the girl or boy who directs the game, "pinching up the skin on its dorsum."

A rather strange fanning game, *Totuam,* is played in Murray Island by men and women during the north-west monsoon. One party visits another, and the

FIG. 1.—MAKE GEGELAKI.

FIG. 2.—EVANENA.

FIG. 3.—TOITOI.

FIG. 4.—TOITOI.

FIG. 5.—POSI-PATA.

FIG. 6.—POSI-PATA.

NOTES ON CHILDREN'S GAMES IN BRITISH NEW GUINEA.

visitors fan the residents, who loll luxuriously on mats, food being given by the latter to the former. A return fanning visit is paid.

The Murray Islanders also form themselves into serenading parties, *Rob*, at the beginning of the south-east monsoon, visiting various villages in succession.

These, and other games and amusements of the Torres Straits Islanders will be described at length in vol. iv of the *Reports of the Cambridge Anthropological Expedition to Torres Straits.*

ON TEN'A FOLK-LORE.

By the Rev. J. Jetté, S.J.

Story-telling, among the Ten'a, is considered quite an accomplishment. With what success they cultivate the art—if art it may be termed—I shall leave the reader to judge for himself after he has perused these pages. I shall endeavour to present a selection of Ten'a tales, sufficient to give a fair idea of their folk-lore.

Story-telling is commonly resorted to as an entertainment to pass away the long winter evenings. The formula, which almost invariably concludes these narratives, evidences this purpose; the narrator winds up his tale by stating that he has "shortened the winter." The entertainment is highly relished. These overgrown children enjoy the stories as much as our little ones their nursery tales, and pretty much after the same fashion they half-believe in the reality of the facts related. They may have heard the legend scores of times, they may be able to tell it themselves; their interest is not the less for their knowledge of it. The stories are never stale to them, never old or tiresome. The season during which the story-telling is at its height is the first part of winter, until the celebrations of the mid-winter festivals are passed, *i.e.*, for about six weeks, from the beginning of December to the middle of January. The entertainment is always an improvised one; no previous arrangement is made. It takes place in the dark. At the usual hour, viz., about nine o'clock, the inmates of the cabin go to bed, that is, stretch their blankets on the floor and roll themselves in them, all around the house, their heads to the wall; generally ten, fifteen or more, sleep thus in one house. The last one to go to bed puts out the light, and darkness instantly takes possession of the place. Every chink is, at this season, well caulked, for the cold is intense; heavy curtains, made in our civilized days of old gunny-sacks, hang on the outside of the windows, to prevent the formation during night of a heavy frost on the inside of the panes, and exclude the very faintest glimmer. It is then that someone suggests, "Let us have a story!" And after some hesitations and entreaties, anyone that "has a story" begins. Politeness requires that after the first sentence, generally very short, the listeners encourage him with the special interjection *anni!* which is used only for this special purpose. The following sentences are also usually followed by an encouraging *anni!* from some of the listeners, and usually the whole narrative is thus punctuated, every now and then, by the *anni* of approbation.

The story-teller speaks slowly, in a sort of mysterious undertone, which contributes, together with the darkness and the wonderful character of the facts

presented, to cast a sort of awe on the audience. As the story develops, the interest increases; peals of laughter, exclamations of commiseration or disgust, reflections on the characters and actions described, conjectures as to what is going to follow, soon cross each other from all quarters. The intense interest and excitement then displayed I cannot better compare than to the impressions manifested by the audience in our theatres. It is the same display, although on a reduced scale.

It happens, of course, that the story is long at times, and the narrator uninteresting; in consequence he puts his audience to sleep, and may stay for a while talking in the dark to no ears but his own. But, as far as my experience goes, this very seldom happens, and, as a rule, the most lively interest is displayed by the whole audience until the very end.

The darkness, required as a condition *sine quâ non* of the story-telling, has considerably hampered my efforts to obtain specimens of the folk-lore. A few times, indeed, finding myself unable to scribble in the dark, I made an attempt at striking a match and lighting a candle, but Medusa's head could not have produced a worse effect. Both narrator and audience were petrified into a desperately silent mood, and not a word was obtainable after that. I had, therefore, to trust to my memory for the main facts of the tale, and by dint of persuasion induce the story-teller to repeat them piecemeal during the following days. The texts I have thus obtained are not quite as rich in detail as the original story. I am confident, however, that they faithfully present the genuine story couched in genuine Ten'a, having put them to the test by reading them aloud to groups of natives, who declared that they understood them perfectly.

The stories are designated in the Upper dialect by the term, *kādōn-tsĕdĕni*, which is an incomplete phrase, meaning, "In old times, it is said," and form a fit formula of introduction, somewhat as in English, "Once upon a time." The Lower dialect call them *roloih*, which seems to be a proper word meaning "story," and it has the connected verb, *rotłloih*, I tell a story.

They may be divided into three classes. First, the inane stories, that are perfectly insignificant and meaningless. The first of those quoted hereafter belongs to this class. They are used by story-tellers who wish to shirk the task and dare not openly refuse when requested, especially when insistently encored after an interesting relation. Also, when a story-teller at the beginning of his narrative finds the audience irresponsive, and does not receive the customary *anni*, instead of stopping short and dropping abruptly, he winds up after a few sentences, and concludes his story in this peculiarly insignificant form.

Second, the myths, or stories connected with facts acknowledged as having really happened; the second, third and fourth of the following stories are of this class. They present the mythology of the Ten'a, intimately connected with what may be considered as their historical records. They are especially difficult to obtain, and the natives are very reluctant to let them be taken in writing.

Third, stories analogous to our works of fiction, having no relation to historical

events or personages, and often modified by the narrator. They may serve to illustrate native customs and to give an insight in the Ten'a thought, but make no pretence to historical exactness. The fifth story, in the following series, is a sort of transition between the myths and the tales of this last group, and partakes of both. The subsequent tales are decidedly fiction. Stories of this description are more easily obtained than the myths, but the inane stories can be had for the asking.

The titles which I have given to them are generally obtained from the natives themselves. It will be remarked that many words, such as "rălte," "rél'é," "rŏntén," "ărŭrŭyĕł" (pronounced in the Lower dialect, "ărŭrŭyĕł"), etc., are capable of various renderings. Their meaning is greatly influenced by the context. Often they are mere expletives, comparable to the particles δε, γαρ, γε, etc., of the Greek.

Nĭl-tsūkălăyū.

The grandmother and her grandson.

Nĭł-tsūkălăyū lĕdŏ. Mĕ kŏya kŭn te-l'ăn. Tsōnkŭda
A-grandmother-and-her-grandson stay. Her grandson firewood gets. A-prairie-chicken (or willow-grouse)

ăłłłĕł. Tsĕyĕrŏtsĕ kŭn no-dălerŏr. Tsĕyerotse te
he-shot (with an arrow). And-thus the-fire-wood he-sleds (home). And-thus his

tsukăla tse rŏyĭ rŏdĕrĕlō, tse nō-rŏdĭłkōn.
grandmother to in-the-underground-house he-brought-the-wood, and he-lit-the-fire.

Tsonkŭda ă-rŏnĭ-kerĕłtlĭh. "Lĕyăn, kăntă," te tsukal
The-prairie-chicken (willow-grouse) he-put-to-roast-on-a-stick. "It-is-fat, it seems," his grandmother

ăłnĭ. Tse ye yăr ni-kĕnĭtōn. Tsĕyero ko tsukal
he-says-to. And her down-in-front-of he-put-some-in-a-dish. And-thus this grandmother

mĕdĭkŭda ără te kŏya ītĕnăłłkŏih. Tsĕyerotse me kŏya tăkă
a-spear with her grandson made-a-thrust-at. And-thus her grandson up

tŏ-dlĕrăł, tsĕyerotse tsĕbă kătse tŏ-dlerăł. Tsĕyerotse me tsukal ye
fled-up, and-thus a-spruce-tree on up-he-fled. And-thus his grandmother it

yar ni-nĭyō, tse yĕdītĕnăłłłĕł. Tsĕyerotse: "Tsukăla, yūyărtsĕn
beneath came, and began-to-fell-it. And-thus: "Grandmother, from-below

sĕnĭnłan," yĕłnī. Tsĕyerotse te tsukal nŏkŏt kĕrĕłłłĕł,
look-at-me," he-says-to-her. And-thus his grandmother's eye he-shot-an-arrow (in),

tsĕyerotse no-no-rălĕrăł, tseyerotse rălĕrăłłł. ărŭrŭyĕł kăyăr
and-thus down-again-he-fled, and-thus he-was-fleeing. Then a-village

nĭyō, tsĕyerotse me tsukal ma ka nĭyo. Tsĕyerotse me kŏya
he-came-to, and-thus his grandmother him after came. And-thus her grandson

yar ledŏ. "Kŭn sor łłi dānĭłłŏih," te koy ăłni. Tsĕyerotse
in-a-house is. "Fire me-to out bring," her grandson she-says-to. And-thus

kŭn-dălĕkŏnĕ yor łłi dānĭłłŏn, tse te koy łatłrăn, tĕkĕn ără,
a-burning-ember her-to out he-brought, and her grandson she-killed, a-stick with,

tse yĕdĭłkon.
and she-burnt-him.

FREE TRANSLATION.

A grandmother and her grandson were living together. One day, as the young man was getting some firewood he shot a prairie-chicken (willow-grouse). When he had brought his wood home and lighted the fire, he put the chicken (grouse) on a stick to roast. When it was cooked he put a piece of it in a dish, and placed it before his grandmother, saying, "It looks good and fat." But the old woman, seizing a spear, made a thrust at her grandson. Whereupon he took to flight, and climbed on a spruce tree. The old woman came to the foot of it and began to chop it down. "Granny!" he cried to her, "look at me from down there"; and, as she did so, he shot an arrow in her eye. Then he speedily let himself down and ran away to a neighbouring village, the old woman pursuing after him. When she came, he was already in a house, so she shouted to him from the outside, "Bring me some fire." And he brought her a burning stick, but she killed him with a club and burnt up his body.

NOTES.

"Nił-tsukālayu." The reciprocal pronoun, "nił," prefixed to the plural of a word expressing a relation of some kind, denotes both terms of the relation. Thus, "tsukāla" meaning grandmother, the other term of the relation is the grandchild, "kōya," and the plurals, "tsukālayu, kōyaka," preceded by "nił," denote the grandmother and the grandchild, "nił-tsukālayu or nił-kōyaka. In like manner, the plural of "kũn," husband, is "kũnka"; and that of "'ot," wife, is "'oka"; hence a married couple is designated either by, "nił-kũnka," or by "nił-oka." Here the other person is known to be a grandson, not a granddaughter, from the following of the story, but also from the Ten'a custom. A grandmother will adopt her grandson, not her granddaughter, because she takes the child as a help for the work, and there is nothing that the girl could do which the old woman could not do herself. But the boy can perform all the tasks which, by custom, are reserved to men, and are not therefore within the pale of the old woman's attributions. Similarly, a grandfather will adopt a granddaughter, not a grandson, for the same reason.

"tsonkũda," a prairie-chicken (willow-grouse), a bird of the pheasant family, smaller than either the grouse or the ptarmigan. Its flesh is entirely white when cooked.

"a-roni-keréłtlih," literally, something was planted in the ground to (the fowl); the word is used only to express this mode of cooking, which is common among the Ten'a, where a camp-fire is available. Fish, fowl, ducks, musk-rats and occasionally slices of deer and bear meat are thus roasted by the fire. The birds and musk-rats are previously cleaned and spread open, the stick being driven through so as to keep them in position. The fish are not emptied, but the stick is passed through the flesh and backbone, and must not

penetrate the entrails; the mouth of the fish is tied with a strip of willow bark.

"medīkŭda," a spear. The Ten'a use three kinds of spear, one to kill bears, another to spear fish, and the third to open the water-hole in winter. This one is here meant, and the word used, though applicable to the others, is proper only for it. It is a pole, at least 6 feet long, at the end of which is fastened, in our days, a piece of iron or steel from 12 to 20 inches in length. This was formerly a piece of bone or of stone.

"kŭn sor tłi daniłtoih." The ending *toih* marks a singular, as if she said, *a* fire, or a burning stick; it also implies that the thing spoken of is actually burning. The young man's readiness to comply with the grandmother's injunction well illustrates the passive obedience of the young Ten'a to any one older than himself. No one but a Ten'a boy would have obeyed the summons under the circumstances; but, in a Ten'a, this obedience is the only course that could be expected.

Tōtson.

The Raven.

Kăyăr rūkŏrtĕn rūlān, tsĕdĕnī. Tĕn'ă lōn. Kōskŏnōn rŏgĕtă kūn
A-village large there-is, we say. People are-many. A-house large also

rūlān. Ēit răłtĕ, yūtłĭt, tsŏrŏtĭyă yătsĕnă, kĕtłkŭł.
there-is. There and, riverwards, the door on-that-side-of, a-blanket-is-spread.

Kĕn sŭŭ mĕ tōr rūlān? Tsărăłtĕ rădădlĕtłĕ yūrrū. Rŏntĕn
What perhaps it under there is? And they-stay thereabout. Strange

sō sīłtŏ-dăłĕnĕn: tsărŏł-kĕdĕnăłlĕtłĕtstsĕ tŏ-rŭdĕyŏr, tsĕ yūur răłtĕ,
the-sun has-been-lost: being-darkness-dark it-has-become, and there

kŭn yĕł rā-kĕreĭłdzăih tsĕ kŏ-reĭdĕdāł. Kŏ nĕdăłsĕ tŏ-rŭnăr?
fire with they-make-light and they-go-about. Here how shall-we-do?

Tsărăł-kĕdĕnăłlĕtłĕts-tsŏ-rŏyăn tŏ-rūtăłtă. Rŏntĕn, tsūkăłă
Being-only-darkness-dark it-has-begun-to-be. Suddenly, the-old-women

tă-rădĕnī: "Kŏ-tĕmă tĕnă ŏrō sō nŏ-ĭrŭłkūt?" Intĕn tĕmă?
say: "Who us for the-sun shall-take-back?" But who?

tŭ-rŭnărĕn ădĕn. Rŏntĕn nĕñkŏrŏtĕn'ă dīlŏyă lŏnĕ kōskŏnōn
the-one-to-do-it (there-is) not. Suddenly the people chattels many the-house

ro rărĕlŏ, yūtłĭt ătłkŭlĕ rŏn. "Tŭurŭyĕ tĭłrō
in they-brought, riverwards the-spread-blanket to. "These-things in-exchange-for

tĕnă ŏrō sō ŏkŏ ko-nānĭtŏr," răyĕłnī. ĭntĕ nĕdăn:
us for the-sun in-search-of fly-about," they-say-to-him. But no:

rătĕłnŏihă tsŏ-rŏzŏkŏł. Tă-răr'ănă tłī nŏ-răyĕnĭlŏ tĕtłĕktsĕn.
he-does-not-stir not-even. Wherefore out they-brought-them-back entirely.

Kŏ kĕn ră yŏ rŏtsĕ rĕĭrŭłnĭh, īrŭ? Răyĕłní kūn:
Here what they him to must-give, perhaps? They-say-to-him also:

"Łĕkă nŏtĕrkĕ tsĕītĕlōłrăł, nŏrō," răyĕłnī. ărŭrŭyĕł rătăłnōn: "Ă'ă,"
"Dogs two we-shall-kill, you-for," they-say-to-him. Then he-moved: "Yes,"

nī. Tsĕ kĕkŏr yān rŏrŏtăłt'ŏn, yĕn-īlĕyăntsĕ tĕ-nŏ-rŭrŭlŏr,
he-said. And fat only they-began-to-feed them, being fat they-made-them,

tsĕ rŏrŏrĕrōn, tsĕ nī-rŭrūnĭtōtł, tsĕ rŭrŭtłbāts, tsĕ
and they-killed-them, and they-cut-them-in-pieces, and they-boiled-them, and

răyĕ-yĕrĕł'ōn. Tsărăł-kĕdĕnăłlĕtłĕts-tĕn tłĭ nĭyŏ tsĕ yūr-nĕdără
they-fed-them-to-him. The-darkness-dark-place out (of) he-went and somewhere

ītĕnăłtōk, tsĕ nŏtŏrtł. Nĕdăr sŭŭ? Rŏntĕn yĕkŏih īłtłŏn,
he-began-to-fly, and he-was-flying. Whither perhaps? Suddenly a-light he-perceived,

tsărăłtĕ tsărăł-kĕdĕnăłlĕtłĕts-tĕn rŏyī-dzā năłtōk, yŭrrŭ kūn ĭnaltōk.
and the-darkness-dark-place out-from he-flew, thither too he-flew.

Rŏntĕn kăyār năłtōk; yĕt rŏtŏkŏ īnăłtōk. Rŏntĕn sōltăn
Unexpectedly (to) a-village he-flew; there over he-was-flying. And-then a-woman

zŭŭ tū ŏkō nŏkŏ dĭră'ŏł; yūtłĭt tŭkĕnkăt
beautiful water in-search-of down-the-bank was-going; riverwards (at) the-water-hole

tū tăłlĕnūn. Ronten āł yŏză ă-ltlăt tsĕ yĕ
water she-began-to-drink. Suddenly a-spruce-bough small he-became and it (the water)

yī kărădĕrĕrăł. Kăł nŏ-yĕdĕtĕłrŏihtł, īrŭ, ĭntĕn yĕ yī nŏ-īdĕdŏrŏihtł,
in he-fell-down. Away she-pushes-it-often, in-vain, but it in again-it-comes-back,

tsĕ rŏtĕkăł yĕ yĕł tū rădĕnŭn. Tō-nŏ-tăłlĕyŏ, tsĕ rādō
and at-last it with water she-drank. Up-she-went-back, and in (the house)

nŏ-ĭdĕyo, tsĕ yūr tŏ-rŭtā, ărŭrŭyĕł mĕ yī tĕn'ă rūtăłtlāt.
she-went-back, and anything goes-on, then her in a-child there-began-to-be.
(= nothing happens)

Tsĕyĕrŏtsĕ nŏ-rŏrĕłtān. Tsĕyĕrŏtsĕ kŏ yăkănyŏză ko-tăłlĕyŏ; yūr
And-thus she-brought-forth. And-thus this baby began-to-walk; some (things)

ko-rūtăłtlŏ, bān tłŭră lĕtlŏyĕ, ĕitĕ kŏ-ĭlā.
he-began-to-carry-about, (at) his-mother's pillow the-things-that-are, these he-carries-around.

Arŭrŭyĕł yūnĭ-yūtłĭt rŏnĭł'ān, aruruyeł sō iłtłŏn, tse
Then up-river-riverwards he-looks, then the-sun he-perceived, and

yŭlnĭk, yūnłĕt ni-yĕnĭ'ōn, kŏ-yĕtăł'ōn. Yū'ănă
he-took-it, off (from the wall) he-put-it, he-began-to-move-it-around. Away

łāł tŏyĕkă, rŏyī yĕrĕłbātł. Bān yū'ănă yŏkŏ
the-underground-entrance under, in-the-hole he rolled-it. His-mother away it-in-search-of

rŏyĭ rĕyŏ, tsĕ nŏ-yŭlnīk. Yūnī-yūtłĭt nī-nŏ-yĭnĭ'ōn. Aruruyeł
in-the-hole went, and took-it-back. Up-river-riverwards she-placed-it-back. Then

ko yakanyoza tăłtsăr. Bān: "tăłēk," yĕłnī; ĭntĕ ătsăr.
that little-one began-to-cry. His-mother: "hush," she-says-to-him; but he-cries.

Aruruyeł mĕ-l'ā kĕ'łŏkĕn tĕ-yĕłnī: "Nōnī-nŏtłĭt sō lŏ'ŏnĕ
Then his-uncle one says-of-him: "Up-river-riverwards the-sun that-is
(= mother's brother)

kāt, rŏtăn"; tĕ-dĕnī. Aruruyeł ko yakanyoza tădlĕ'īh. Ban
(he) wants, perhaps"; he-says. Then that little-one said-"He!" His-mother

so ulnik tse tĕ-tĕn'ă tlo-no-yĕrĕ'ōn. Ko yakanyoza
the-sun took and her-child she-gave-it-back-to. That little-one

ko-no-yetal'on: yu'ana łāł tŏyĕkă royi no-yerélbatł.
began-to-carry-it-around-again: away the-entrance under in-the-hole he-rolled-it-again.

Ya ka royi réyo: yū'ŭt rŏtłĭ-rĕtŏntĕn ro yĕrĕ'ōn, tse
It after in-the-hole he-went: there where-there-is-a-passage out he-brought-it, and

łăłyī tă'ănă tłi yĕnĭ'on. Ko yakanyoza tōtsōn ā-nŏ-łlĕlăt;
the-entrance away-from out he-put-it. That little-one a-raven he-became-again;

ye yeł no-ĭtōk, tse nŏ-nŏtŏrtł. Tă kăyār ye yeł nŏ-nătōk:
it with he-flew-back, and he-was-flying-back. His village (to) it with he-flew-back:

nĕñkŏrŏtĕn'ă tlo-no-yeré'on. Aruruyeł rā-nŏ-rūdălt'īt, tse "nĕtŭră,"
the-people he-gave-it-back-to. Then it-was-light-again, and "thanks,"

răyĕłnī. Yĕt-rŏtłŏrŏn ko tōtsōn yutłit tsŏrŏtĭyă rŏkălă, yet
they-say-to-him. Thereafter this raven riverwards the-door aside-of, there

ni-no-ideyo. Yet ra ye tŏr nŏ-kĕdĕrĕłkūł. Kŏtă, rŏih
he-returned. There they him upon spread-again-a-blanket. That-is-all, the-winter

rōn nălĕtłkŭs.
a-part-of I-have-chewed.

THE RAVEN.

There was a large and populous village, says the old tradition. A big house, stood in the place, and near the door, between this and the river, a blanket was spread on the ground. What could there be under it? People were gathered around it. A strange thing had occurred: the sun had disappeared, and all was in the dark; they had to light their way with torches. What was to be done? it was dark all the time. Then the old women began to say: "Who will get back the sun for us?" But who indeed? There was nobody to do it.

Well, the people began to carry things into the house, quite a pile of things, as a gift to the one under the blanket. Then they said to him, "You go and fly about to get back the sun, and we will give you all these." But it was of no avail: he did not budge. So they took all the things back. Then they said to him: "What if we kill two dogs for you?" This time he stirred: "Yes," said he, and so they began to feed the dogs on fat only, and made them very fat. Then they killed them, and cut them in pieces, and boiled them, and fed him with them.

Immediately he started to fly out of the darkness, flying along. Where was he going to? Suddenly he saw a light, and flying towards it he emerged out of the dark. He had come to a village, and over it he hovered. There came a beautiful woman, going down the bank to get some water. At the water-hole she began to drink.

All of a sudden the raven was transformed into a tiny spruce-leaf, which fell down in the water the woman was drinking. She pushed it off, again and again, but

every time it came back, and at last she swallowed it with the water. She went back to the house, and, not having had any intercourse with any man, she became pregnant, and, in course of time, gave birth to a child. When this child was old enough to begin to walk, he would play with the things that were in the house, dragging them around. He used to take things from under his mother's pillow, and carry them here and there.

Once, looking in the south-east corner of the house, he saw the sun there in the corner. He took it, brought it into the middle of the house, and began to move it about the place. Then he rolled it into the underground tunnel, toward the entrance. Seeing this, his mother went into the tunnel after it; she brought it back and replaced it in the south-east corner.

Then the child began to cry. "Hush!" said his mother to him; but he cried none the less. One of his uncles said: "I think he is crying for the sun, there in the south-east corner." And the child said: "Hé!" (=Yes). So the mother took the sun and gave it back to her child, and again he began to move it about; again, he rolled it into the entrance tunnel, following after it, and soon enough he had lifted it up through the entrance-hole, and placed it on the outside of it.

The child then resumed the raven form, and took its flight, carrying the sun. He went on, flying, until he reached his village. There he gave back the sun to his people, and they thanked him: it was daylight again.

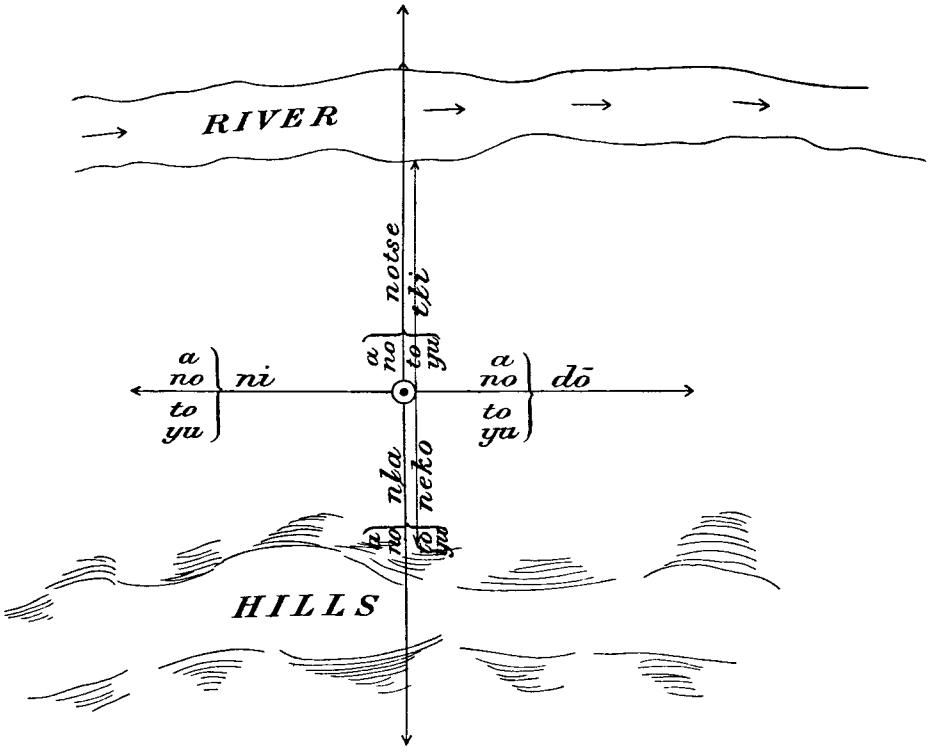
After that he returned to his place, by the side of the door, towards the river, and they covered him again with the blanket.

That is all. I have chewed off a good bit of the winter.

NOTES.

"Kōskŏnōn," a big house, properly the meeting-house, where dances and celebrations of all kinds took place. There was one in each village, and it was large enough to hold the entire population, and at least as many more guests. In old times all the winter dwellings were underground, and consequently, also the "koskonon," for the celebrations are mostly held during winter.

yūtłīt, riverwards. To understand this and the following narrative, it should should be remarked that the Ten'a, as well as many other tribes, make constant use of four designations of direction, which practically answer to our cardinal points. They are designated by the adverbs: "nī, nīt," upstream; "dō, dōt," downstream; "tłī, tłīt," riverwards; "nĕkŏ, nĕkŏt," landwards. For long-distance points "tłi, tłit," are replaced by "nōtsĕ, nōtsĕt," across the river, or "nān, nānă" across the sea; and "nĕkŏ, nĕkŏt," are replaced by "nłă nłĕt," beyond the hills, there being generally a range of hills running parallel to the river. The following diagram illustrates these directions:—



Adverbs of direction are always preceded by one of the prefixes: "a, no, to, yu"; "a" and "no" denoting the nearest point in the given direction, "yu" denoting the furthest, and "to" any intermediate. Consequently, "a" and "no" are also used to point to any short distance, "yu," to any long one, and "to" to any that is neither remarkably long nor short. Intermediate directions are formed by combinations, exactly as we say north-east, for a direction between north and east; they are (using the prefix "yu"): "yutłi-yunit," riverwards-upstream; "yuneko-yunit," landwards-upstream; "yuneko-yudot," landwards-downstream; "yutłi-yudot," riverwards-downstream; "yunotse-yunit," across-upstream; "yunła-yunit," overhill-upstream, etc. These narratives being collected from people living on the Yukon, where all the settlements are, practically, on the north bank, the general course of the river being to the west, I shall consider, unless the context should stand against it, that "yunit, tonit, nonit, anit," are practically equivalent to east; "yudot," etc., to west; "yutlit, yunotset, yunana," to south; and "yunekot, yunlet" to north. But these renderings are not to be considered as expressing the meaning of the words "yutlit," etc.

"tsŏrŏtīyă," the door, viz., the opening or vacant space. In the underground house this is a hole in the ground, by which one goes down to the entrance tunnel.

"ketłkūł," a blanket is spread. The Ten'a word does not imply a definite object. The ending kūł denotes anything that can be folded in all directions, as blankets, clothes, tents, sails, etc. The indefinite pronoun ke, which begins the verb, means something undetermined; the whole verb literally means: something, of that kind of things which can be folded in all directions, lies.

"kĕn sŭū mĕ tŏr rūlān ?" this question invites the hearers to guess that the Raven is meant, because he usually figures in the stories as an individual careful to wrap himself in blankets. His identity will be made quite plain by his eating dog-flesh, and the narrator will not need to name him. In fact he is mentioned under his real name, "tōtsōn," only towards the close of the story.

"tsūkālă tā-rădĕnī." The phrase may be understood as a singular: an old woman says about the circumstances—then "ra" is the qualifier, and the verb is "radesni";—or as a plural: the old women say—then "ra" is the pronoun of the 3rd person plural, and the verb is "desni." The old women are the sages of the Ten'a tribes.

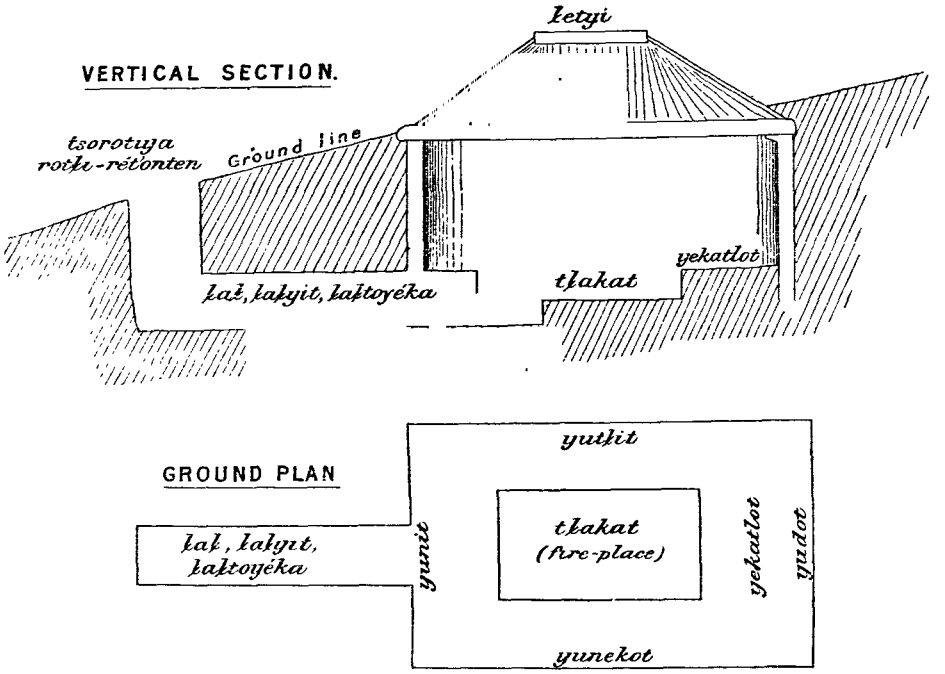
"łĕkă nŏtĕrkĕ," two dogs. Here the personality of Raven becomes manifest; only he has such a voracious appetite, and would eat dog-flesh.

"tūkĕnkăt," the water-hole. It is well-known that in winter every Ten'a settlement keeps a hole open in the river-ice, where the daily supply of water is obtained. Hence it is evident that the story relates a winter happening.

"yūr tŏ-rūtā," literally: things are in some way; it simply expresses that nothing worthy of mention happens; but all the narrators took great pains to explain to me that it implies that the woman did not have intercourse with a man. She conceived from the spruce-leaf which she had swallowed.

"yūnī-yūtlīt," see, above, the note on "yūtlīt." (p. 305.)

"łāł tōyĕkă," literally: under the entrance, *i.e.*, in the entrance-tunnel. The winter dwellings of the Ten'a were formerly half underground, the roofs only projecting above the ground. They have two entrances, one through the chimney, "łetyi," or aperture at the culminating point of the roof; it is often used in the stories; the other through an underground tunnel some 10 to 20 feet long, in which one had to crawl on all fours: a hole in the ground gave access to it at the other end. They were invariably oriented parallel to the river, the entrance being in the upstream direction. Among the upper tribes, however, the entrance seems to have been facing the stream. The following rough diagram gives an idea of its shape and arrangement:—



In our days the Ten'a have universally adopted the white man's log-cabin, but they still retain the orientation of the old times, and consequently have the door on the east side. Even this remnant of their former customs is, however, rapidly disappearing.

"rŏih rōn nālĕtłkŭs." I have bitten off, or chewed off, a part of the winter, *i.e.*, my story has made a part of the winter pass unnoticed. "Naletłkŭs," I have bitten or chewed, is the word used by the people of the upper tribe, and they invariably explain it as above rendered. Those of the lower tribe, however, use "nekŭts," and explain it as meaning: is short; so that their phrase: "rŏih rōn nĕkŭts" means: a part of the winter is short, or shortened, viz., by my narrative. I believe this to have been the primitive meaning, even in the upper dialect form. Both phrases allude to one of the main purposes of the story-telling practice, which is to pass away the long winter evenings.

The myth of the Raven is one of the most universally rehearsed among the Ten'a tribes. The above text was given to me by Andrew Keniyo, a native of the Koyukuk River, but I heard it, in almost identical terms, from Alexander Rakayidelaih, of Nuloyit, from Nicholas Surarloł, of Kaltag, and from Andrew Rŭts, of Roluketchakat. The same wonderful feat of the Raven is related with many others by Ivan Petrof among the myths of the Thlinket tribes of South-east Alaska (see *A Compilation of Narratives of Explorations in Alaska*, Washington, Government Printing Office, 1900; p. 275).

Nŏ-tĕnā-ā-dlĕtsĭntsĕn.
The-second-making-of-man.

Kél, tōyōn nĕlānĕn, tĕn'ă rūlāntĕ, rél' lĕdō-'é.
A-young-man, rich who-is, men in-a-place-where-there are, or-so is-he-staying.

Mŏ-ōzăkă tĕnĭhnă kūn rādādlĕtłé. Yūnān rāłtĕ tĕnăgōłōn
His nephews four also are-staying. Across (the sea) and a-young-girl

tādlĕ'ōnĕn, tĕn'ăyŭ kā tĕ-yīnĭlĕnă'ān, ōkō nŏ-tālkān,
desirable, men for who-is-not-wishing, in-quest-of he-is-crossing-in-a-canoe,

tōyōn-mĕtlāā. Kélkăyŭ lōnnă: "Nĕtsēirŭłkūt," rāyĕdĕrēnī,
a-rich-man's daughter. Young-men many: "Let-us-take (marry) you," they-have-said-to-her,

īrū. Yūr tōyōnyŭ yān rāłte kŏ tē-yĕłnĭnă; ĭntĕ
in vain. Some rich-people only and these who-were-saying-so-to-her; but

"nĕdān," nī, tsŏ-rŏyān. Tsărāłtĕ kŏ kél kūn, kō tōyōn:
"No," she-says only. And this young-man also, this rich-man:

"Sī kĕ sŭū mōkō nŏ-nĕskān tā," yītĕnāltlīn.
"I too perhaps in-quest-of-her I-canoe-across if," he-has-begun-to-think.

Tsĕyĕrŏtsĕ yōkō nŏ-tālkān, mŏ-ōzăkă tĕnĭhnă, mĕ
And-thus in-quest of-her he-has-begun-to-canoe-across, his-nephews four, him

yĕł tāldātłtsĕn. Eīt no-nīkān. Tsărāłtĕ: "Nĭtărātłkĕł tŏ-rŏr
with having-started. There he-canoed-across. And: "I shall-take-you in-order-that

kŏ no-nĕskān," yĕłnĭ, īrū. ĭntĕ: "Nĕ tlŏ tĕlărăs'ōlă,"
here I-have-canoed-across," he-says-to-her, in-vain. But: "You giving-to I-shall-not-go,"

yĕłní. Tsĕyĕrŏtsĕ yĕt kŏtŏrmĕn na-rătāłlĕdātł. Kŏtā, tsēi yī
she-says-to-him. And thus there the-morrow they-started-back. Now, the-boat in

nā-rādĕyŏ, nōtłĭ tōbānă. Tōbānă rādlĕyŏ, tĕtłéktsĕn,
he-has-stepped-again, riverwards on-the-beach. On-the-beach they-have-prepared, all,

kŏ mŏ-ōzăyŭ yĕł, tsĕyĕrŏtsĕ rādādlĕtłé. Tŏrūnŏ nĕñkŏrŏtĕn'ă lōnnă
these his-nephews with, and thus they-stay. Meanwhile people many

tłī nă-rătāłlĕdātł, tsĕ yūtŏkŏ tlōtōkŏt rādādlĕtłé. Tsărāłtĕ
out have-come, and up on-top-of-the-bank they-stay. And

rābĕ-kāyī-rŏnādlĕ'ōt, ēi sōltān ōkō nŏ-nĭdātł īrŭ nă.
they-were-ashamed, the a-woman in-quest-of have-crossed in-vain ones-who.

Tŏrūnŏ yūtŏkŏ tĕnā tŏr sōltān lĕdō, tĕ-tĕn'ă yōză rāłtāłtsĕn,
Meanwhile up people among a-woman stands, her-child little she-carrying

nūkūdzā'ān, kłé kĕłtūkĕn. ōdĕn rāłtĕ, kŏ yăkănyōzā: tā-ă-dĕtālnī:
a-s ll-one, still who-is sucking. She and, this baby: she-began-to-say-to:

"ōdĕn tū? Sōltān kā tā-rādĕnī tā, tō-tān kŏ sĕ-yōdzāā?"
"Her what-of? A-woman wishing-for they-say if, what-does this my-child?"

yĕłni, rōrā yŏr-dĭlūntsĕ āntā-kŏ tē-yĕłnī. Arŭrūyĕł
she-says-to-it, by-which she-fools-her it is she-says-so-to-her. At-that-moment

yūlăłłłōn kŏ kĕlă, tsĕyĕrŏtsĕ tŏrł'ōyă yūnĕkă yŏkō
he-heard-her the young-man, and-thus the-paddle landwards in-quest-of-it

dŏlĕtlĭh: "Kŏ kătsĕ tŏ-łłtăih, ēi tŏ-dīnĭnĕn," yĕłnī.
he-held-out: "This upon put-up, the one-whom-you-say," he-says-to-her.

Tsĕyĕrŏ yă kătsĕ tŏ-yītłtăn. Tsĕyĕrŏtsĕ tĕ nĭtsĕnă ni-yĕnĭłtān,
And-thus it upon she-placed-her-up. And thus himself behind he-placed-her,

kŏ kĕlă. Tsĕyĕrŏtsĕ ni-ko no-ĭdăkān, tsĕ kŏ mŏ-ŏzăkă
this young-man. And-thus off he-canoed-again, and those his-nephews

kūn ni-ko na-rătăłlĕdātł. Tŏrŭnŏ ko tĕnăgōłŏn ko yŏkŏ
also off they-started. Meanwhile that young-girl the (one) in-quest-of-her

no-nīkănĕn, tū ro no-tălyŏ. Ărŭrŭyĕł yūtłĭ tōbănă
he-canoed-across-who, water for she-started-down. Just-then riverwards on-the-beach

roni ĭlĕkōk. Tseyerotse: "Ĕnă! se tłŭrkă roni nĕgĕkŏk!"
she-sank-in-the-mud. And thus: "Oh! oh! my knees I-have-sunk-in-the-ground,"

ni. Arurŭyeł: "Nĕn, nĕ dzĭyĭt!" yełni. Tseyerotse kŏtă, te
says she. Whereupon: "You, your ears!" he-says-to-her. And thus now, her
(= it is your fault)

nĭdzĕt rū roni-ĭlĕkōk, arurŭyeł: "Ĕnă! se nĭdzĕ ru
waist about she-sank-in-the-ground, whereupon: "Oh! oh! my waist about

roni nĕgĕkŏk!" ni. Arurŭyeł: "Nĕn, nĕ dzĭyĭt!" yełni.
I-have-sunk-in-the-ground," says-she. Whereupon: "You, your ears!" he-said-to-her.

Tseyerotse kūn te kŭłkĕn roni-ilekok, tseyero: "Ena! se kŭłkĕn
And-thus again her neck she-sank-in-the-ground, and-so: "Oh! oh! my neck

roni-negekok!" ni. Arurŭyeł te-yełni: "Nĕn, nĕ dzĭyĭt!"
I-have-sunk-in-the-ground," said she. Whereupon he-said-to-her: "You, your ears!"

Tseyerotse kŏtă, nĕn yĭtsĕ me-yeł-tăłlĕnīk eī tenagołon; kota
And-so finally, the-earth from-the-inside-of she-was-pulled this girl; now

ma-rŏdĭtănă. Tŏkŏdĕkun ko kĕl rĕl'é: "Tŭ-rŭnăr,"
she-does-not-appear. Because that young-man probably: "May-it-happen-to-her,"

yŭdĕni, tse nĕ-nŏ-yĭnĭ-rălĕłtsĕ nĕn yĭtsĕ me-yeł-tăłlĕnīk.
he-thinks-about-her, and as-he-wills the-earth from-the-inside-of she-has-been-dragged.

Arurŭyeł ko bān răłtĕ tłărŭz-lĕkă ătăn; ŏitĕ răłtĕ
And-then the her-mother on-the-other-hand brown-bears-tame she-has; them then

tōbăn nŏkŏ-dĭlŏ, tse ye kă ŭlnīk tse: "Ăltsĭh nĕtłĕł
on-the-beach down-she-brought, and their tails she-took-hold-of and: "Wind strong

tŭ-rŭnăr!" yełni, rałte ko kĕlă tū tĕ-tŏlĭł, nĭtsĕn.
let-it-be!" she-says-to-them, thus that young-man water will-do (drown) him, saying.

Tsarałte tār nŏ-rŏtălnŏr ēi ko tłărŭz-lĕkă, rūtłĕłtsĕn,
And at-the-bottom they-began-to-dig the those brown-bears-tame, strongly,

tseyerotse tōt gĕtă rūtăłtlāt, oite yeł rałte tū kĕtĕtĭ
and-thus waves big there-began-to-be, these with also the-water extremely

nĕkŏrtsĕ tĕ-deyŏr. Tseyerotse lŏ'ŏn dīdzăkăyĕ, lŏkŏlĕ, dza dĕnănĭ'ŏn
being big (high) it-became. And-thus a-stone slender, white, out he-took

ko kéla, ko yĕdĕnā'ŏihĕ. Tsarałte yĕdĕtsĕk, tseyerotse rŏntĕn
the young-man, which-he-was-carrying. And he-threw-it, and-thus suddenly

me nŏnłā kota tálrātł, tŏkăł rū rŏyăn; rūdzăkătĕn
him ahead-of now it-became-smooth, where-he-is-to-canoe only; in-a-narrow-space

ăntēi tálrātł, tŏrŭnŏ nīłkăatsĕn rałte kĕtĕtĭ tōt nĕkŏr
it-is-that it-has-become-smooth, whilst on-both-sides but very-much waves big

tĕ-tăn. Tsarałte ko mō-ŏzăkă tĕtłĕknă rałte tū tă-răbĕilŏr,
are-at-work. And those his-nephews all and water did (drowned) them,

mĭzĕnī. Ko yet kăyār rŏtănă yeł tĕtłĕkna tū tĕ-nĕlŏr. Rō kō
it-is-said. The there village people too all water did (drowned). Indeed that

yăkănyŏzā bān, ŏitĕn yān ră-tŏ-kŭn yĕł kĕdŏ-rărĕlĕt, răbĕizĕnī.
little-child's-mother, she only her husband with were-saved, they-are-said.

Ko kél rałte yĕtŏrŭnŏ răkăł, rałte tálrātł-rū
That young-man however in-the-meantime is-canoeing, but where-it-has-become smooth

rŏyăn. Īntĕ rōrō-īnāltsōn, kŏtă. Tū yān rūlān, tōt gĕtă yĕł.
only. But he-is-tired, at-last. Water only there-is, waves big with.

Tseyerotse kŭskăzā ūnīłkōih, arurūyeł tōt tłīł-tŏkŏt rūtłkōih.
And-thus a-harpoon he-throws, and-then a-wave's crest he-struck.

Rŭyĕł rŏntĕn me-yeł-tłĕ-rŏdădlĕnĕn, rŭtłĕłtsĕ tĕ-yīnĭlĕntsĕn. Kota,
Then suddenly he-fainted, (so) strongly being-thinking. Now,

tsēi yī dĕnŏlĕnĕn. Arurŭyeł rŏntĕn me-yeł-ro-nŏ-rŏdĕlĕt, rŭyĕł
the-boat in he-has-laid-his-face. But-then suddenly he-came-back-to-himself, then

tsĕbă tŏr rŏntĕn mīdŏy yī lĕdŏ: nĕñ nŏ-rūltlāt.
spruce-trees among unexpectedly the-canoe in he-is: the-ground has-begun-to-be-again.

Tōt tłīł-tŏkŏt rōtłkoīh rŭyĕł dłĕł ă-ltlăt, ei tōt gĕtă,
A-wave's crest he-struck then a-mountain it-became, the wave big,

Tōtsŏn-tō-kĕdātłkŏihtĕn, răzĕnīrū. Yĕt rałte
The-place-where-the-raven-hit-the-top, the-place-which-we-call. There moreover

rā-dădlĕlĭh ei kŭskăzā, tseyerotse kūn tōt lōyĭt ra-dadlekat,
it-rebounded that harpoon, and-thus again a-wave on-the-end-of it-struck,

tse dłĕl ă-ltlăt, rałte ko Dīnălĕ mĭzĕnĭyĕ, tseyerotse
and a-mountain it-became, and this the-long-one which-we-call, and-then

yō yĭt ră-năłlĕyĕł. Tsĕnīł'ănă ēi kŏ rŏn, tĕyĕnyŭ yān
the-sky in it-stuck. We-do-not-see-it the these we the-shamans only
(we ourselves)

yĕnīł'an tsĕ ye-yeł-tĕnĭh. Tseyero ko kéla rałte yakanyoza
see-it and know-it. And-so this young-man however the-little-child

ye nĭtsĕn lĕdŏnĕn tse kĕītĕnăltōn, ruyeł ronten kota nekor:
him behind who-sits towards he-turned-his-eyes, then unexpectedly fully it-is-big:

tenagołon geta a-ltlat tse yū'ăn ni-nĭyŏ.
a-girl big it-has-become and apart she-is-gone (she has reached the sequestration time).

Tsă-răr'ănă yĕkă nădlĕ'ōn, ma-kăyī-rŏnădlĕ'ōt-tsĕn. Inte nĕzŭn:
Wherefore down she-looks, being-ashamed. But she-is-beautiful:

me nān sō kăntā. ŏitĕn tsĕn ăntēit nenkoroten'a no-dlĕtsĭn,
her face the-sun is-like. Her from it-is-that people were-made-again,

tŏkŏdĕkūn ko kĕl tsĕn mĕ-tĕn'ăkă rūltlāt. Tŏrŭnŏ
because this young-man from her-children there-began-to-be. Meanwhile

ko nŏtĕrnă rałte, ko kedo-rarélet mizenina, oina tsen rałte
those two also, those they-were-saved whom-we-say, them from also

yūnăn kūn neñkoroten'a no-dlĕtsĭn.
across-the-sea also people were-made-again.

THE SECOND MAKING OF MAN.

In a populous settlement there lived a rich youth and his four nephews. Far away, across the sea, there lived a very desirable young girl, but who did not care for men, and this girl he desired to marry. So, he undertook to cross over in his canoe, in order to propose to her. She was the daughter of a rich man, and many young men, rich ones only, had asked her hand, but she had rejected all their offers. To all proposals she invariably answered no. Now then, this young man began to think with himself, "If I were to go and propose, in my turn, perhaps she would accept me." And he started, his four nephews accompanying him in their own canoes. They arrived, and he said to her: "I have come across the water in order to take you to wife." But she answered: "I will not marry you."

And so, the next morning they made ready to start back. The young man was already in his boat, down on the beach; his nephews had packed all their things, and they were just ready to go. Many people had come out of their houses to see them going, and were standing in a crowd on top of the high bank. Among them there stood a woman carrying her young child on her arm, a baby, not yet weaned. This woman then, talking to her baby, said: "And what of this little girl? If they want a girl, why not take this little one of mine?" Of course, it was only baby talk. Still the young man, on hearing it, held out his paddle toward the woman, and said: "Put her upon this, the little one you speak of." And the woman did so. The young man placed the child behind him in the canoe, and off he paddled, his nephews following him.

Meanwhile the girl whom he had intended to marry came down to get water. But as she stepped on the soft mud at the water's edge, she began to sink down into it. "Oh! oh!" she cried, "here I am sinking up to my knees!" The young man retorted: "It is your own fault." And she sank still further, up to her waist, and exclaimed: "Oh! oh! now I am in up to my waist!" And he said again: "It is your own fault." By this time she had sunk up to her neck. "Oh! oh!" said she, "I am in up to my neck!" Again he replied: "It is your own fault!" and she disappeared, being dragged down under the ground. Very probably the young man caused this, by his very powerful thought: "Let it be so," thought he.

But the girl's mother had some tame brown bears, and seeing what had happened, she took them down the bank, to the water, and laying hold of their tails

she said to them: "Raise a strong wind." hoping that the young man might get drowned. The bears began to dig the bottom in a fury, and made huge waves. At the same time the water rose exceedingly. But the young man pulled out a thin white stone which he was carrying with him and threw it ahead. Whereupon the water became perfectly smooth over a narrow space ahead of him, just where he was to pass, whilst on both sides the waves were enormous and raging. All his nephews were drowned, and all the inhabitants of that village also perished in the waters, except the mother of the baby and her husband. These were the only two who escaped.

During this frightful storm the young man was paddling, always on the smooth water. But he was exhausted. Nothing but water and big waves, all over. Then he took a harpoon and threw it. It hit the crest of a wave. But the effort he had made to concentrate his thought whilst throwing the harpoon overpowered him; he fainted. His head bent down in the fore-part of the canoe. Soon after, however, he recovered himself, and oh wonder! there he was, in his canoe, in a forest of spruce-trees. The land had been formed again. The wave he had hit with his harpoon had become a mountain, it is the one we call: Totson-to-kedatłkoihten, *i.e.*, The-one-whose-top-was-hit-by-the-Raven. The harpoon had glanced on the moutain top, as the wave hardened into rock and had struck again another huge wave, changing it into a mountain; this is the one we call Dinale, *i.e.*, The-high-one. Again the harpoon made a bound on the hard rock, but this time it went up and stuck into the sky. We cannot see it, ourselves, though it is still there; the medicine-men only see it and know where it is.

The young man then turned towards the child whom he had left sitting behind his back, but she was no more a child, she was a grown-up girl, who had just reached the age of puberty; she had to be put apart (having had her first menstruation). Hence she felt very much ashamed, and kept her eyes cast down. But she was quite beautiful, with a face as bright as the sun.

It is from this woman that men were made anew to re-people the earth, for she had children from the young man. But the two who had been saved from the waters, as we have seen, these were the ancestors of the people beyond the seas.

NOTES.

"Nŏ-tĕnā-ădlĕtsĭntsĕn." Literally, our being made again. This title alludes to the re-population of the earth, after its inhabitants had been destroyed by the waters. (There can be but little doubt that this story presents a tradition of the Deluge. One would be tempted to find in it also a remembrance of the crossing of the Red Sea.) Despite the obvious biblical parallels it seems to be a perfectly genuine Ten'a tradition, and the witness to its authenticity as a native record is the name of the mountain first struck by the harpoon: "Tōtsŏn-tō-kĕdātłkŏihtĕn." This name has been in use for ages past, and according to all probability, before the Russians ever penetrated into the

country, and it must, of all necessity, be connected to some such tradition as this. This story presents another of the Raven's exploits, although his name appears only in that of the mountain just mentioned, but this hint is sufficient to the Ten'a mind. It is in the lower dialect, and has been obtained from Michael, or Neraila, Torotenałnik, a native of the Nulato neighbourhood, uncommonly intelligent, and remarkably well versed in the old folk-lore. He told it to me twice, and the first version, which I was simply listening to, without writing, was much more detailed and lively than the second, which I wrote down. As soon as I took the pencil to write, his glow of enthusiasm vanished, and if it had not been for an old friendship, intensified by the fact that we were both far away from our homes and isolated in the midst of strangers, I could never have persuaded him to let me write his words. The Ten'a are quite unwilling to have their folk-lore couched in writing.

The title of this story evidently suggests that there exists among the Ten'a another tradition, viz., of the first making of man, but this I have not yet been able to obtain.

"tōyōn," a rich man. The term does not belong to the Ten'a, but is a Kamtchatkan word introduced by the Russians.

"rél'e, rél'." A word of rather vague meaning, used as an expletive, to just give a shade of undetermination to the phrase. The natives who speak some English, render it by "I guess," "I guess so," and this, taken in the sense it commonly has with miners, is the most exact translation.

"yūnăn, yūnănă." See the note on yūtłīt, after the story of the Raven. (p. 305.)

"tādlĕ'ŏnĕn," desirable, literally: highly esteemed, that is made much of.

"nĕtsĕirŭlkūt," let us take you. The Ten'a have no marriage ceremony: the man "takes" the woman; the woman "goes as a gift," *i.e.*, gives herself to the man, and the marriage is made.

"tă," if, placed after its clause, in the same way as the prepositions after their object.

"nĕ tlŏ tĕlărăs'ŏlă," literally: you-as-a gift-to I-will-not-go. The woman's consent to marriage being properly expressed as: go as a gift to the man.

"tŏ-tān," what does? equivalent to: what is the matter with? what is the objection to? etc.

"yor dĭlŭntsĕ," fooling with her (the baby), viz., talking child's talk to her.

"nĕn nĕ dzĭyĭt": "you, your ears," to mean: "your own fault." The phrase may be elliptical and stand for: "nen, ne dziyi rokalatsen," *i.e.*, "you, for your having no ears." The most common expression of blame among the Ten'a is: "kuliłtłona, me dziyi rokala": "he does not listen, he has no ears," because the foremost virtue, in their moral code, is obedience and a disposition to be easily persuaded.

"tłărŭz lĕkă," tame brown-bears. Literally: brown-bears-dogs. Any domestic animal, especially if used to draw, is distinguished from the wild one by the appellation "léka," dog. Thus when the Ten'a became acquainted with the

reindeer, which is, according to all appearances, the same species as the native caribou, "ranoya," they immediately named it "ranoy-léka." The brown or cinnamon bear, "tłarüza" (*Ursus Richardsonii*) is the fiercest animal known to the Ten'a.

"tū tĕ-tŏlīl," water will do him. This is the common expression for drowning: water does me, means: I am being drowned.

"lŏ'ŏn dīdzăkăyĕ, lŏkŏle," a thin white stone. Such stones are still considered as having wonderful powers, and used as amulets. These are called "madza."

"ko yăkănyozā bān," etc. That this couple should have escaped the universal destruction of mankind, seems to be a detail added to the story when the Ten'a became aware of the existence of other people beyond the seas. If it is really an interpolation, it is cleverly contrived.

Tōtsōn-tŏ-kĕdātłkŏihtĕn." This mountain which I judge to be less than 2,000 feet high, belongs to the Kayar range and it lies about S.S.E. of Nulato, at some 50 miles from this place, whence it cannot be seen. It is covered with reindeer moss, and used to be a favourite resort of the caribou, and consequently a frequented hunting ground. It is therefore well-known, under this name, to the whole tribe.

"Dīnălĕ," "The high thing," really deserves its name, for it is no other than Mt. McKinley, 20,300 feet high, the highest peak on the continent. It cannot be seen from Nulato, but is well known to the nomadic Ten'a.

"yū'ăn ni nĭyŏ," she went apart: the phrase, by its allusion to a well-established custom, is equivalent to: she is in the first month from her first menstruation.

Nĕnĕlĕ'ĭn.

The Bugbear.

Yūrdŏnă tĕnă-dzŏr-tŏ-rŭtā Kōdīlkăkăt. Eit rałte sōltăn
A-long-time-ago we-were-famished at-Kodilkakat. There then a woman

yū'ăn lĕdŏ, tsăr-tłăk nĕ-dāl'ŏn. Eit rałte sălnŏ,
apart stays, the-puberty-cap she wears. There then we-are-gone-on-the-hunt

rŏihtŏr rŏrĕlĕt ru. Kota, kłĕrŭlŭ-kŏkă. Rałte tena-dzor-to-ruta.
the-winter has-passed at-the-time-when. Now, on-the-hard-crust. And we-are-starving.

Eit rałte mŏ-kŭn ăn-nŏ-tĕd'ŏih, tŏrŭnŏ rałte yăr ledo ko
Then also her-husband goes-hunting, whilst on-the-other-hand at-home she stays this

soltan. Tsarałte kota tŏ-rŏdŏlĕł; kota nūdār lĕdŏn kălă.
woman. And presently it-is-thawing; already the-snow some is-not.

Kĕłŏkĕ-nĕlĕdŏrŭnă yĕn-ĭtlĭ, băabă ădēn. Ră tŏ'-ŏt yĕł, ră
Twenty-persons have-perished, food for-want-of. They his-wife with, they

tŏ-kŭn yĕł rŏyăn rŏrŏnō. Ko mo-kŭn an-no-tałleyo. No-ĭdĕyŏ.
her-husband with only are-living. This her-husband again-went-hunting He-came-back.

Ko, ronte mŏ-'ŏt kălă, ko ronten kō-yĕdĕłkŏnĕ yān lĕtlō.
Here, unexpectedly his-wife is-not, here unexpectedly the-things-she-sews only lie.

Tseyerotse yŏkō nŏ-rŏlĕyăr, īrŭ, ĭntĕ ra-nāłlĕnīk Kota,
And-thus in-quest-of-her he-searches, in-vain, but he-failed. It-is-all-over,

Nĕnĕlĕ'ĭn a-ltlāt, ko soltan. Tseyerotse kota tŏ-rŏdĕrĕlĕt; kota łū
a-bugbear she-has-become, this woman. And-thus already it-has-thawed; now ice

kălă, tū yān rūlān. Tseyerotse ko mo-kŭn an-nŏ-tĕdăkăih,
there-is-not, water only there-is. And-thus this her-husband goes-hunting-in-his-canoe,

bĕkĕnăl ŏkō. Eit rałte bĕkĕnăl tĕ-ł'ăn, ko mo-kŭn. Nī-rŏ-ăkăih
musk-rats in-quest-of. Then and musk-rats he-catches, this her-husband. He-lands

tŏr, mĕł-nĕlĕtĕn. ŏrŏtŏr rāłtĕ bĕkĕnăl nŏtĕrkĕ tĕłtĭhtł. Tseyerotse kĕlŏkĕ
when, he-sleeps. Then also musk-rats two he-roasts. And-so one

ă'ŏn, kĕłŏkĕ rałte nī-ăłtăih. Tŏrŭnŏ mĕł-nĕlĕtĕn. Dza-ălĕk; kŏ,
he-eats, one but he-puts-aside. Meanwhile he-sleeps. He-awakes; that,

tān ni-yĕrĕłtăkĕ bĕkĕnăl kălă. Yĭłkĕk, łōn! ko mo-'ot,
(he-knows), which-he-has-put-aside musk-rat there-is-not. She-takes-it, oh! that his-wife,

ko nĕnĕlĕ'ĭn a-ltlătĕn. Tseyerotse rŏlŏntĕn yerotse tĕ-tăn, ko
the a-bugbear who-has-become. And-so many-times thus he-acts, this

mo-kŭn. Kota, kĕt'ōn dĕnātłyōn, tseyerotse kota băabă tātłlīt.
her-husband. Now the-leaves have-grown, and-then that-is-all the-food she-leaves.

Kota, ătłĕyĕ-łōn yūdŏo tălyŏ ko mo-'ot yān; toruno ko mo-kŭn
Now, in-reality down-river she-is-gone the his-wife only; meanwhile the her-husband

Kōdīlkăkăt ledo. Ătsăr tsŏ-rŏyăn.
at-Kodilkakat stays. He-weeps all-the-time.

Kota, nĕnĕlĕ'ĭn kŏnōn nĭyŏ, sānlăy tŏr, nŭlără
Now, a-bugbear to-the-house has-come, summer-salmon at-the-time-of, dog-salmon

tłŏrŏn. Kota rałte kŭn ŏtŏr tăldŏ, rałte tłĕtăł tŏr
after. Now also the-fire near-by she-has-begun to stay, and night when-it-is

baaba āntsĕ tātłzŭk; kĕdīnālt'īh. Tseyerotse
food from-the-opposite-side she-has-begun-to-take; she-has-begun-to-steal-food. And-so

ma-ka-rūlĕnīk, tsĕyĕrŏtsărăłtĕ tĕyĕnyŭ ră yŏr kŭn ără
we-have-found-her-out, and-also the-medicine-men they for-her the-fire near-to

ni-nīdātł, tseyerotse yī-rĕitāłłĕyĭk, rałte răyĭtŏłkĕł tŏ-rŏrŏn.
have-come, and-so they-began-to-make-medicine, and-this they-may-catch-her in-order-that.

Īrŭ: răyĕ-nāłlĕnĭk. Kota, kĕlkăyŭ nĭłkŏzĕnălnă, ĕină rałte kŭn
In-vain: they-failed (to-catch) her. Then, young-men ten, they also the-fire

kābără ni-nidatł. Tsarałte tłĕtĕ rŏtăltlĕt rŭyĕł yŭ'ŭ ronten
around gathered. And the-night has-begun-to-pass when over-there suddenly

ni-nŏ-tsŏt'ŭstł, ătłĕyĕ-łō ko soltan łō ko tĕ-tănĕn. Iru:
some-one-is-coming-again, and-it-was that woman indeed the one-doing-so. In vain:

răyĭłkĕlă. Kota, tĕkĕn-yī kŏnōn tsŏrŏtătłtsĭn. Kota, baaba
they-did-not-catch-her. Then, logs-in a-house we-began-to-build. Now the-food
(a log-house)

yŭyŏkŭ yăr royan ni-tsĕnĭlŏ, ko yăr tsŏrŭtłtsĭntĕn ni-tsenilo.
on-the-floor in-the-house only we-placed, (in) that house which-we-made we-placed (it).

Ăkŏskă tsŏrŭtłtsĭn; yĕt rałte tĕ-kĕtsĕltlŭn, — kăbīł, — tseyerotse rałte
A-window we-made; there then we-laid-a-snare, — a-noose, — and also

kĕlkăyu mă-răză-rūlānnă tŏrnă tŏdzārkāt ni-nidatł, kŏ nĕrălnĭhă
young-men who-had-a-penis three in-a-corner came, the rawhide

yĭ-rūnĭtŭntsĕn. Ruyeł ronten rōr dītădlĕnĭk, baaba ītătłkŭttsĕn,
holding. Then suddenly through she-put-her-hand, food beginning-to-take

toruno răyīltlŭih. Kota, nō-kĕtsĕrĕłtăn. "Kota tsūlnīk, tĕn'ă
during-which they-noosed-her. Then, we-shouted. "Now we-have-got-her, men

tĕtłĕkă." Kota rałte, yĭdō tsĕnĭłtăn: "Kota rałte tena ro'ot lărĕ,"
all." Then and in we-brought-her: "Now then our wife to-be,"

rayełni. Yar rā-rŭtłnăr: kĕtĕtĭ mā-rūlĕtsŏł, ŏrŏdōn nenle'in
they-say-of-her. The-house she-broke: extremely she-is-strong, long-ago a-hobgoblin

a-ltlat ĭn'ĕn, łōn. Kota rałte nō-nŏ-rŏtădlĕyāk, yăkănyŏză
she-has-become although, strange. Now then she-began-to-have-children, babies

nă-ăłtăih. Kota rałte tĕn'ă-rulantse tŏ-rŭlŏr. Tseyerotsarałte:
she-brings-forth. Now then there-being-people she-has-made-the-place. And-thus-and:

"Nĕnĕlĕ'ĭrktĕn rā-dŏrnī," ni ko ŏdĕn, ko soltan. "Kōdīlkăkăt
"Place-of-the-goblin call it," says (the) she, the woman. "Of-Kodilkakat

rŏtănă ĕslăntsĕ ăntă-kōn. Yăkăt sĕ-dzŏr-tŏ-rŭtā, tseyerotse
an-inhabitant I-being so-it-is. There I-was-starving, and-so

sĭłtŏ-nĕs'ŏ," nī. "Kota Kodilkakat rotana tŏrlă,"
I-went-away-losing (the place)," says-she. "Now of-Kodilkakat people you-shall-be,"

tĕ-tĕn'ăkă ăłnī; "tsarałte Kodilkakat rotana nōrł'ān tŏr rałte yŏr
her-children she-says-to; "and of-Kodilkakat people you-see when, then your

dzāy yĕł răbŏr-tĕ-yĭnŏrlĕn, kĕtĕtĭ tă-răbŭdŏrnī: yăkălă yŏr lĕdŏn rēilān.
heart with love-them, much esteem-them: behold your brethren they-are.

Ko isi nĭłlŏttĕn rŏtănă ă-lĕslăttsĕ ăntā-kōn," rałte ni.
Now indeed (of)-a-distant-place inhabitant I-having-become so-it-is," and says-she.

Kota, ten'a atłtsin ko nenele'in, tsarałte ten'a rulan. Tsarałte kota,
Then, men she-made that bugbear, and-so men there-are. And then,

Kodilkakat-rotana yet a-rultlat. Kota Kodilkakat kă-to-ruta. Kota.
Kodilkakat-people there there-became. Now Kodilkakat it-is-like. The-end.

THE BUGBEAR OR THE GOBLIN.

A long time ago there was a famine at Kodilkakat; a woman was then at the period of her separation; she stayed apart wearing the cap of puberty. People had gone out on the spring hunt; the winter was at its end, and the travelling was done on the hard crust of the snow. But all were starving. The woman's husband was going out on short hunting excursions, while she stayed at home. The thaw came; the snow began to disappear. Twenty people had already died of starvation. That woman and her husband were now the only ones left. One day the husband went on one of his hunting trips. When he came back what was his astonishment. His wife had disappeared, her sewing only was to be found in

the house. He searched everywhere, but could not find her. The woman had become a goblin.

The snow had thawed away; there was no more ice, the river was free. The husband began to go hunting in his canoe. He was hunting musk-rats, and catching some every time. When he came to land, he slept. At those times he used to roast two musk-rats, and after having eaten one, he put the other aside and went to sleep. On waking up he always found that the musk-rat, which he knew very well that he had put aside, had disappeared. His wife was taking them, after the manner of the goblins. Many a time did this happen. But when the trees were covered with new leaves, she ceased to come and get her food. She had gone to the lower river, far away, and the husband remained alone at Kodilkakat. He was crying all the time. (The scene is shifted to Koserefsky.) Ah! a goblin has come into the house, after the run of the dog-salmon, whilst the summer-salmon are running. It stays around the camp, and at nights it takes the food from the rack; it steals the food. People have found it out, and the medicine-men have gathered around the fire to conjure against it: they performed their incantations to catch the goblin, but without success: they could not catch it. Then ten of the young men also gathered at the fire-place, and sat up during the night. When it came near to morning they were aware that someone was coming near to them; it was the woman, but they failed to catch her.

Then the people built a log-house, and placed all the food inside of it, on the ground. They also cut a window-like opening in it, and there they put a noose, to catch her. Three young men, who had reached the age of puberty, stood in a corner, holding the end of the raw hide which was to noose the goblin. This one came and passing her hand through the opening to get hold of the food, was caught by the three young males pulling at the string. They uttered a great shout of triumph: "We have got her; come, all of you!" And they brought her into the house. "Oh! she will be a wife among us!" they said. She was still very strong, so strong that she pulled down the house, even though she had been a goblin for a long time.

She had many children, and through her the place became quite populous. "You shall call this 'the-Goblin's-place,'" said she. "I am from Kodilkakat, in truth I am; but because I was starving there, I left the place. As for you," she said to her children, "you shall be Kodilkakat people. When you shall see any of the Kodilkakat people, you shall love them with a sincere heart, you shall make much of them, for they are brothers to you. Indeed, I have settled in a place very distant from my own." So she said.

And thus she brought forth children, and the place was peopled, and indeed with Kodilkakat people, so that it is a new Kodilkakat.—The end.

NOTES.

"Nĕnĕlĕ'ĭn," pronounced in upper dialect: "nĕnlĕ'ĭn," and in lower dialect: "nĕnĕl'ĭn," the lower dialect, however, commonly uses the term "Nedōron,"

to designate beings of this kind. They are described as having the human form; with a hairy skin and long claw-like nails. They are supposed to abide in the neighbourhood of camps, and to come at nights to steal food, especially the salmon which is put up on the racks to dry. They generally chose the best morsels. The belief in the "Nenele'in" enables the Ten'a to account for many petty thefts committed at night, mostly by reckless young men or hungry old women: the Nenele'in has done the deed and the reputation of all the tribesmen is safe. These beings are not so bold when the men are in the camp, but when these are away hunting and only the women remain at home they are said to have no fear. Many a time I was begged to stop for a few nights at the summer camp of Nikulirkakat, some eight miles below Nulato, whilst the men were hunting, that my presence might scare away the "Nedoron" which is known to haunt the place. The actual belief is that the one who sees a "Nedoron" or "Nenele'in" must die, unless he has nerve enough to kill it, tear open its belly and devour its liver. It is well known in Ten'a circles that Ketok'ona, an inhabitant of Kaltag, who died some 10 or 15 years ago, thus treated two of these goblins, and managed in this way to save his life. The man is also known to have killed a few other Indians, and it is to be presumed that a lie would not burden his conscience more than a murder, but this a Ten'a does not see. The Nenele'in are supposed to be transformed men or women, who, as in this tale, after running away from their homes, became goblins.

"Kōdīlkăkăt."—A place of foremost importance in the traditions of the Koyukuk Indians, and generally referred to as a sort of happy land, the place of great hunts and of warlike people. The name means; "mouth of the Kodil River" this being an affluent of the Koyukuk. The river itself is called "Kōdīlnō," and its head-waters, "Kōdīldlōt.

"Yū'ăn lĕdŏ."—stays apart, viz., after her first menstruation. It may seem strange, then, that she had a husband. But this was by no means uncommon, in the old times. Children were matched together before puberty, and only began to cohabit when old enough to do so.

"tsăr-tlăk," the puberty cap. This is not necessarily a special cap, but may be only the common parkie-hood. Only the mode of wearing it distinguishes it from the everyday headgear. It must cover the forehead and almost the eyes.

"klĕrŭlŭ-kŏkă," in lower dialect: "tlŏrŭlŭ-kŏkă." The hard crust. In spring, the sun partly thaws the surface of the snow during the day, but this cools again during the night, and, in the early hours of the morning, freezes into a hard crust, strong enough to allow a person to walk over it without breaking through.

"kĕłŏkĕ-nĕldŏrŭnă," Twenty, *i.e.*, literally, "one count," the "count" being made on the fingers and toes.

"sānlăy tŏr, nūlărā tłŏrōn," literally: during the summer-salmon, after the

dog-salmon. The salmon begins to run in June; the first run is that of the king-salmon (Oncorhynchus tschawytscha); next come the dog-salmon (Oncorhynchus nerka); then the summer-salmon or silver-salmon (Oncorhynchus milktschitch). These scientific and ultra-barbarous names are borrowed from David S. Jordan, in an article on "The Trout and Salmon of the Pacific Coast," in the *Pacific Monthly.*

"antse," the opposite side, the fish-rack, on which the fish are put to dry is on the side of the camp-fire opposite to the one where people sit and chat.

"tĕkĕ̄n yī kŏ̄nōn," a house in the logs, *i.e.*, a log-house. It might also mean a hut made of small round poles, but, in our days, it is simply understood as a log-cabin.

"ăkŏ̄skă," a window, a modern term, borrowed from the Russians. The primitive text probably had: a hole, an aperture.

"tĕnā̆ rŏ-'ŏ̄t lā̆ră," to be our wife. This must not be understood as meaning that she would be a common wife to all or several. Simultaneous polyandry was unknown to the Ten'a, and they had no idea of prostitutes. When the Ten'a who worked on the Yukon River steamboats first saw this imported product of our civilisation, in Dawson, their astonishment was only equalled by my disgust at hearing them jump at the conclusion that all white women were alike, and asking me whether my own people and relatives were the same.

"Nĕnĕlĕ'irktēn," shortened to "Nĕlĕ'ĭrktĕn," is the name by which the Ten'a designated Koserefsky, before the whites had introduced the latter appellation.

This story is well accredited and believed among the Ten'a of the upper tribe, and they often appeal to it to accentuate their relationship to those of the lower tribe. I had occasion to write a letter for Thomas Dat'on of Koyukuk Station, to his son at the Koserefky Mission School, in which, after giving much good and rational advice, he went on saying: "Be kind to the people of Koserefsky; even though their manners and language would appear ridiculous to you, remember that they are brothers to you through the Kodilkakat woman who migrated there in the old times," etc.

Tĕ̄lĕł-Tĕn'ă.
The-Eagle-Man.

Yūtłūr	sān-kā̆kā	tŏkŏrŏldā̆lă	mĭzĕnĭyĕ,	tłā̆rū	sōltā̆n	zūū	
Down-on-the-beach	the-small-bird	woodpecker	which-we-call,	at-first	a-woman	fair	

mŏkū̆n	rēlă.	Kĕ̄łte	sān	yĕ	yĕł	sān	rĕ̄lĕt,	tsĕ̄yĕrŏ̄tsĕ
her-husband	it-was.	Once	a-summer	her	with	summer	he-spent,	and-then

rūlkŏ̄tł,	tseyerotse	kĕtĕ̄n	soltan	kā	tĕ-dĕyŏ̄r,	tłaru	mŏr-yĕrĕ̄dŏ'ōn.
it-froze,	and-then	another	woman	wishing	he-became,	at-first	with-whom-he-had-lived.

Kūn tĕnăgŏłōn zuu rŏ rĕdŏ, tłaru, tse ĕitĕn kā tĕ-nŏ-dēyŏr.
Also a-girl fair with he-had-lived, at-first, and this-one wishing he-again-became.

Tseyerotse ko mo-'ot yor tłi īlĕkăr. Tōnăn-tōdōŏ
And-then that his-wife from-him outdoors ran-away. Across-downstream

no-nĭyŏ, tse eit yuūr ră'ŏł. Tłŏtnă ro lyŏ
she-crossed, and there at-random she-was-walking. The-south-bank up she-went

tŏrŭnŏ, ăltsĭh ŏkō răn'ăih, răyĕłnī. Tseyerotse tĕkĕn rulanten, ărū
while, the-wind for she-speaks, they-say-of-her. And-so wood where-there-is, there

rărătăkă rā-dĕnānīłkŏtł, tse ałtsih yĕkă ră'oł. Eit mĕnkā
in-the-intervals the-wind-blew, and the-wind under she-walked. There lake

rĕl'-kŏ rā-dĭ'ŏn-ĕ; eit tŏbănă no-niyo. Tseyerotse tōbăn
some-one she-reached; there on-the-beach she-crossed. And-so on-the-beach

ko-ĭd'ōih. Eit năralŭ-kŏnōn rŏtłă eit rél'-ko rūŏn-é; eit
she-walks-about. There a-winter-house wretched there somehow she-found; there

rél'-ko ĭdŏ nĭyŏ-'é. Eit ko-yŭyŏkŏ ko-nō-dădlĕnīk iru, inte nĕñkŏrŏtĕn'a
somehow into she-went. There on-the-ground she-groped-about in-vain, but people

īłtălă. Tse ko yŭtŏkŏ ro ko no-dădlĕbĕdzĕ, eite kătsĕ kūn
she-found-not. And the above (you-know) the bunk (or shelf), that on-top-of also

ko-no-dadlenik, tsărăł yĕkă. Ruyeł rūlĕtsĕł kă tŏ-rūtătĕ
she-groped-about, the-darkness under. Then it-is-wet like it-is-where

rŏkă-dīlĕnĭk, ărŭrŭyĕł ronten kĕdŏ-tsĕdĕtădlĕrăł: "Hŭm!... hŭm!...
she-touched, just-then suddenly some-one-was-scared: "Hum!... hum!...

.. hŭm!" tsĕdĕnī, ĭtłăk. Tseyerotse dza-dŏlĕrăł, tseyerotse tłi
.. hum!" we-say, it-is-heard. And-so she-was-scared, and-so out

no-īlĕrăł, tse ōdĕ dzān kŏlĕkŏk. Tse yŭr răłtsĕn, kota nō-kĕdĭ'ŏn.
she-fled-back, and the-whole day she-ran. And toward evening, already the-sun-is-set.

Tseyerotse rél' kŭn rulante rél' ni-ĭlĕkŏk, tse tūur ăd-ŏrō
And-so fire-wood where-there-is she-arrived-running, and there herself-for

rŏdīlĕkōn. Răłtsĕn rŏdātłkōn tse rałtsen tăkă lĕdŏ, ărŭrŭyĕł
she-made-a-fire. At-evening she-keeps-fire-going and at-evening up she-stays, at-that-time

ma-kă rŏtsĕ ronten tsŏ'ŏstł ĭtłăk; ătlĕyĕ-ło
her-tracks from-the-direction of unexpectedly we-are-coming (someone-is-coming) it-is-heard; and-it-was

ko mĕnkā rā-dĭlĕkŏktĕn eit yăr lĕdŏnĕn, tsīkălă; tse
that lake whereto-she-had-run (in) that house the-one-who-stays, an-old-man; and

ko ma ka yŏ'ŏlĕn yĕł'ŏsk, aruruyeł ronten: "Ănłă!
this her after who-was-coming sneezes, whereupon suddenly: "Near-ahead!

ma-ka-ras'ole no-dĭnī"; tsedeni, itłak. Aruruyeł kota
the-thing-after-which-I-am-going you-foretell"; (= one-says) we-say, it-is-heard. Whereupon then

īnădlĕkĕt, tse tŏ'ŏ me tsŏrŏtĭyīt, ko tłi-nă-ăd'ŏihtĕn, nŭdār
she-began-to-fear, and over her door-at, the place-where-she-goes-out, snow

yī rél'-ko rŏdĭłkōnĕ, ko tenagołon, ni-tsĕnī'ōts. Ye tse
in it-is-that she-built-a-fire, this girl, we-stopped. (= someone-stopped) Him toward

kēīnāltōn, aruruyeł tŏ'ŏ rŏ̃ntĕ tsī̃kāl tłār ronte
she-cast-her-eyes, and-then over-there oh! an-old-man decrepit unexpectedly

me tsorotiyi lă'ā̃n. Tseyerotse ko to'o tsī̃kāl yĕnīł'ān: "Nor
her door-at stands. And-then that over-there old-man looks-at-her: "There

na kala rūzū̃ntsĕ sŏ̃rŏ tŭ-rū̃lăr," mī̃zĕnī. "Kĕn-ḗ, tsī̃kāł?
(by) your side nicely for-me prepare-a-place," we-say-to-her. "What-is-it, old-man?

Tuūr sa kala, sŏr nī̃łkŏ̃otsĕnă ī̃sĭ tĕkḗn rūlān," yełni, ko
Over-here (by) my side of-me on-both-sides indeed sticks there-are," she-says-to-him, this

zī-ā̃łōŏt. "Untĕ nŏ̃nĕko, ne nŏ̃rtsĕnă." "Kĕn-ḗ, tsikał?
untruthfully. "Well, then, landward, you behind." "What-is-it, old-man?

Tŏ̃nĕkŏ se nŏ̃rtsĕnă isi kūn teken rulan," yełni, ko zi-ā̃łŏŏt.
Landward me behind indeed also sticks there-are," she-says-to-him, this untruthfully.

Aruruyeł tsikal tĕ-nŏ̃-yĕdĕdĕnī̃: "Untĕ nŏ̃nĕtsĕn, nĕ kŏ̃ŏtsĕn."
Whereupon the-old-man says-to-her-again: "But-then on-the-other-side, you opposite."

Tseyerotse tonetse te kootsen rél' ruzuntse to-rulor.
And-thus on-the-other-side herself opposite, I-suppose, nicely she-prepared-a-place.

Tseyerotse tonetse ye kootse ni-niyo ei tsīkā̃lă. Eit rél' yuur rā̃łtsĕn
And-so on-the-other-side her opposite he-went the old-man. There then about evening

mĕł ā̃ră nō-nŏ-dīnā̃dlĕlĭh ko tĕnăgŏłōn. Tseyerotse mĕł-rĕinā̃dlĕtĕn rél'-é;
sleep by she-began-to-nod the girl. And-so they-slept somewhat;

aruruyeł tonetse me kootse tā̃kă-ădā̃-nŏ-sḗłnĭh. Tseyerotse
but-then on-the-other-side her opposite we-get-up (one-gets-up). And-so

tā̃kă ădā̃-nă-ăłtsḗk, tse tĕkḗn nił tse no-detełdihtł; ŏ̃rŏtsĕ-rŏ̃ră
she-jumps-up, and sticks each-other against she-rubs; by-this-means

rałte rodatłkon, ko nĕlĕkḗttsĕn. Tse rél' ko tłĕtĕ réłnik:
and she-makes-fire, thus being-afraid. And then thus the-night she-passed:

rŏdātłkŏn-tsĕ-rŏ̃ră mĕł-nīlĕtḗlă. Tseyerotse yītłkōn, tseyerotse nŏ-łlĕtlū̃n,
by-keeping-up-the-fire she-did-not-sleep. And-so it-dawned, and-so she-dressed-up,

tseyerotse rél': "Tsī̃kāł, tŏ̃-nĕtā-'ḗ nŏr nă kā̃kĕl tłā̃kă mŏ-rū̃lnăr
and-so then: "Old-man, what-is-the-matter that your clothes shabby they-are-broken

łŏ̃nḗ?" yełni. Tseyerotse rél'é ta kā̃kĕlă tenagołon tlo-rḗlŏ: "Sŏ̃rō
oh?" she-said-to-him. And-so then his clothes (to) the-girl he-gave: "For-me

nŏ-rḗkōr; tŏ̃-nĕtā̃yĕ-kūn tŏ-dī̃ni?" Tseyerotse kū̃n mŭ-rūlā̃nĕ
mend (them); what-is-the-matter-with you-say-so?" And-so sticks which-were-there

dā̃lĕkŏnĕ yĕ nŏrū̃łyī dĕrḗłdātł, tseyerotsarałte ko tenagołon ko te
burning them in-the-midst-of she-thrust, and-then-also the girl the herself

tlŏ̃yăr ni-yīlĕyāih, rŏ̃ră yĕrŏdī̃łkōn. Tseyerotse: "Tsī̃kāł,
behind she-puts-them, by-which she-burnt-them-out. And-then: "Old-man,

to-neta-'é nor ne tā̃agă tłā̃kă kūn mo-rulnar łoné?" Tseyerotse te
what-is-the-matter that your parkie shabby also it-is-broken oh!" And-so his

tā̃agă kūn tenagołon tlo-rḗłkuł. Tseyerotse yerodiłkon. ŏ̃rŏtsĕ-rŏ̃ră ye
parkie also (to) the-girl he-gave. And-so she-burnt-it-up. By-this-means his

kā̃kĕn yeł tĕtłḗktsĕ rodiłkon. Tseyerotse tsī̃kăł kēintā̃dĕ-ledo; tā̃kă
shoes also entirely she-burnt-up. And-so the-old-man is-naked; up

ledo ădĕ-kĕdĭłtāntsĕn, ko tenagołon nīł'ănă toruno. Inte
he-stands, warming-himself-by-the-fire, the girl he-does-not-look-at whilst. But

ko dīnādlĕkōtł, tseyerotse: "Kĕkĕł dăĕlĕkŏnĕ dāłlĕkĕt! Ro-to-netaye
then it-began-to-blow, and-so: "Clothes burnt it-smells! How-is-it-that

kĕkĕł kŏnă se yi dĕtăĕlkōn?" yełni. "Tsĭkał, to-neta
clothes burnt me in have-begun-to-burn?" he-says-to-her. "Old-man, how-is

ko se tăaga kŭn nō-dŏĕlĕnĕn: dīkŏn; ĕitĕ ăntēitĕ tĕ-nĕtăyĕ,"
this my parkie in-the-fire down-has-fallen; it-is-burnt; this it-is which-is-so,"

yełni. Toruno ko ye kĕkĕlă rodiłkon. Tseyerotse:
she-said-to-him. Meanwhile those his clothes she-has-burnt-up. And-so:

"Tsikał, tłā tŏ'ŏ kŭn ŏkō tłi-tărăs'ŏł," ni, zī ăłōot.
"Old-man, a-moment there wood in-quest-of out-I-shall-go," she-says, untruthfully.

Tseyerotse nŏ'ŏ tłī tăĕlyŏ, nŏ-łlĕtlŭntsĕn, tsikał yenił'ana
And-thus there out she-went, being-dressed, the-old-man does-not-see-her

toruno, tse tŏ rŏtłă yōłrŏlĕ nă-ătłyĕł, tseyerotse rél'-ko
whilst, and her sled which-she-was-carrying she-seized, and-so then

tādlĕrăl-é. Ko tsikal a-nĕlĕkĕt, tse yur dzān kŏlĕrăł, ŏdĕ
she-fled. The old-man she-fears, and about the-day she-ran, all-along

dzān rŏlŏră. Tse yur ménka ra-dilekok, tse kĕtsăn
the-day entire. And a-certain lake she-reached-running, and grass

rulan. Kărărătăkă ni-ko talyo, tse kĕtsăn łŏră
there-is. Between (the bunches) off-out she-went, and the-grass on-the-tops-of

kĕtăltŏn, tĕkĕn yĕdōtĭlĕ ără. ŏrŏtsĕ-rŏră altsih
she-stretched-a-stick, the-stick which-she-carries by-means-of. By-this-means the-wind

oko răn'ăih. Tseyerotse rā-dĕnănłłkŏtł nūdăr yĕł, ko ketsan
in-quest-of she-speaks. And-so it-blew snow with, this grass

ră'ănă. Tseyerotse yūnănă no-ilekok, tse aru rărătăkă
on-account-of. And-so to-the-other-side she-ran-across, and there in-the-space

ko nāltăn é. Inte kłé nĕłtăihă toruno ma ka dza
there she-went-to-bed. But still she-does-not-lie-down while, her after out

īlĕkŏkĕn nĕrĕł'ān. Kĕkĕl ăděn yĕrŏtsĕ răĕlĕkŏihtł, tseyerotse tă
the-one-who-came she-saw. Clothes without thus he-is-running, and-so his

kă a-no-no-dĕlĭs: "Ko-rŏră să kă īnŏlĕkŭr," yełni; tse
feet on-he-waters: "In-this-way my feet will-be-warm," he-says-of-it; and

nō-nŏ-dĕzĭł, ĭtłăk: "é! ătĕtĕ łō tŏ-rŏnălĕgĕlĭt é?" Tseyerotse
he-shouts, it-is-heard: "Hey! truly is-it that-I-have-got-it?" And-so

nōnăn-nŏtsĕnă nāltăn, ko tenagołon, tse dĕnĕlĕtłĭz kāntăyĕ,
across-on-the-other-side she-lay-down the girl, and a-bell a-thing-like,

rănŏy kăĕlĕkŭnă, yĕł roni-kĕdĕrĕtlīh, tseyerotse ŏdĕ tłĕtā kĕdĕnĕlĕtłĭs
deer's hoofs with she-planted-a-stick, and-thus all-along the-night it-rings

kădĕnī, ode tłeta dŏ-dĕrĕłnik, ko altsih. Tseyerotse kŏtŏrmĕn
it-sounds-like, all-along the-night it-made-noise that wind. And-so in-the-morning

kŏtā̆ yītłkon. Tseyerotse ro nā̆-rădĕyŏ. ā̆rŭrŭyĕł rō̆ntĕn rā-kĕdī'ō̆n,
finally it-dawned. And-so out she-came-again. Then the-sun-shines,

tseyerotse ko tān yunotse ni-niyo ru, aru
and-so there, as-she-knows, on-the-other-side she-has-stopped where, there

kăr nŏ-tā̆łlĕyŏ ko tenagołon. Tse yur tō-nī̆dzĕt ni-nă-răd'ō̆ł,
back again-she-went that girl. And about water-middle she-comes-near,

aruruyeł ko no-niyo ru ma ka ronte tsĕltā̆n, ătłĕ̆yē̆-łō
then there she-had-gone where her after we-lie-down (= one-is-lying) and-it-is

ko tsī̆kāł, ko rā-dī̆tsīh-tse rora ăłlĕtē̆n, łōn. Tā̆kă
that old-man, the blowing by-means-of he-is-frozen.

dā̆dĕbĕt toruno łĕtā̆n; eit rél' ko mă rā̆ză ăłlătē̆nĕ taka tā
tĕ-nĕtā̆: eit rél' nātłrŏł, aruruyeł ronten yō̆līł

ītōk Eit-rotse-tō̆nłă kota dłĕł tĕ niyo. Eit tā̆răyū̆k
Henceforth then mountains amidst she-came. There the-salt-sea

kă-tōbā̆nă ra-dī̆yŏ. Eit rél' kā̆yār rulante niyo. Eit-rotse
shore she-reached. There then a-camp where-there-is she-came. There-from

kō̆tŏrmĕn yĕtĕłkōih, tseyerotsarałte mŏr tłi nŏ-tsŏrŏdī̆dĕnīh,
(in) the-morning it-begins-to-dawn, and from-her out we-have-all-disappeared,

ăn-nĕ-nā̆-rătĕdĕdī̆htł. Kŏr ī̆dŏ nă-rā̆lĕyā̆ih. ŏ̆rŏtĕ rałte me-dzŏr-tłā̆kă
they-go-hunting. Hares in they-bring. Then too (with) the-breast-sinews

tā̆bīł yĭ-īrō̆n ko tenagołon. Tā̆bīł tō̆-nālĕtā̆yĕ sŭū̆ āltłtsī̆n; eita
nets she-made this girl. Nets how-many perhaps she-made; these

ā̆ră łū̆kă tĕ-tātł'ā̆n. Eit kotormen kūn mor tłi
by-means-of fish she-began-to-catch. That morning again from-her out

no-tsorodidenik. Eit rałte tsikał tłăr ronten yū̆tŏkŏ
we-have-all-disappeared. Then but an-old-man decrepit suddenly above

lē̆tyī lĕdō tse yoko-ran'aih: "Ro-to-netate kūn
in-the-smoke-hole is and calls-her: "And-what-sort-of-a-place also

līdō̆tĕn?" yełni. Tse kĕdō̆zărătł kāntā̆yĕ yū̆yŏkō̆
the-place-where-you-stay?" he-says-to-her. And a-pot-hook a-thing-like down

yĕ tsĕ rŏyī dĕrē̆tlĭh. "Kōn kā̆tsĕ tŏ-lī'ō̆ih," yełni.
her toward in-the-hole he-held. "This upon come-up," he-says-to-her.

Kota, yuur rā-dā̆łlĕnār, ko tenagołon, tse eita katse tō̆-lyŏ.
Now, that-place she-was-tired-of that girl, and that upon up-she-went.

Tseyerotse tă kā̆dzŏr ni-yĕnīłtā̆n, tseyerotse rél' nōnā̆nă
And-so (under) his armpit he-placed-her, and-so then to-the-other-side

yĕ yĕł nō̆-nŏ-īnā̆ltōk. Tseyerotse yuur ye yeł nōtō̆rtł.
her with he-took-his-flight. And-so there her with he-was-flying.

Aruruyeł rél' ko tsikala łē̆tyī tā to-rutaten me
And-then this old-man (at) a-smoke-hole thus (gesture) a-place-that-is her

yeł to-no-nālĕdŏ, tseyerotse tă kădzŏr dza no-yeniłtan. "Nōyŏkŏ
with he-alighted, and-so (from) his armpit out he-took-her-again. "Down

royi nĕ'ōih! Rō-nĕtătsĕ-kūn-mărĕ-tŏ-rūtănĕn yŭr
in-the-hole go! One-with-whom-what-is-the-matter-now in-some-way

tĕ-tălĕstăn?" yełni. Tseyerotse nŏyĕkă royi réyo. "Rŏ-nōnĕkŏ
have-I-taken?" he-says-to-her. And-so down in-the-hole she-went. "There-landward

yĕkătlōt kŏkŏr tłŏk yi lĕtlŏyĕ, eite tsĕn kŭrŭ'ōn," yełni.
on-the-bench the-fat a-dish in which-is, it from eat-some," he-says-to-her.

Tseyerotse notoko tĕnă-ădĕ-nirŏdălĕnĕn; tseyerotse tsărăł-kĕdĕnĭdĕtłĭts.
And-so up-above we-disappeared; and-so it-becomes-darkness-dark.

Tseyerotse tuur tsărał-kĕdĕnăłĕtstĕn ko-no-dādlĕnĭk ĭrŭ. Yĕkātlŏn
And-so there in-the-darkness-dark-place she-groped-about, in-vain. On-the-bench

răzĕni-ru ni-dŏlĕnĭhtł: tłŏk dzăkă ĕitĕ yi ronten nūlăr
the-place-so-called she-laid-her-hand: a-dish narrow this in to-her-surprise salmon

tłĕskă ronte letlo. Inte yī'ĭlă: mŏrō tsō-yītłăkă. Tseyerotse
slime unexpectedly there-is. But she-did-not-eat-it: to-her it-was-no-good. And-so

nŏnĕtsĕ ko-ledoten ni-no-ideyo. Tseyerotse eit ledo.
on-the-other-side the-place-where-she-was she-returned to. And-so there she-stays.

Aruruyeł nŏtăkătsĕn łĕtyī rā-nō-kĕdălkŭt: nō-nŏ-dĕtŏ, ĭtłăk.
Then from-above at-the-smoke-hole there-is-noise: he-has-come-back, it-is-heard.

Notoko kăkădlă łetyi rŏtŏkŏ dānī'ŏnĕ kăł ni-no-dĕnănīłnĕn,
Above the-stump the-smoke-hole on-top-of which-is-across, away he-pushed-back,

ko tsīkălă, tseyerotse ré'lé nōdŏrtsĕ mĕ tsĕ royi nŏ-tsōd'ōts, tse:
that old-man, and-so then from-above, her to in-the-hole we-came-back, and:

"Rō'ĕ nŏnĕkŏ kŏkŏr tłŏk yi letloye tsĕn kĕrĕn'ŏn-ĕ?" yelni.
"Over-there landward the-fat a-dish in which-is, from did-you-eat-some?" he-says-to-her.

"ō'ŏ, tsīkăł, noneko kokor tłok yi letloye tsĕn kărăsŏn," yełni,
"Yes, old-man, landward the-fat a-dish in which-is, from I-ate-some," she-says-to-him,

zī-ăłōŏt, nŏr zī mĕ tsĕn kēi'ĭlă, inten. Tseyerotse yur
untruthfully, for merely it from she-ate-not-some, even-though. And-so thus

tłĕtĕ rorélet. Tsō-rūtłăkătsĕ rŏkă ye tse tĕ-tăn, iru; yŏr kăł
the-night passed. Evil-things wishing her to he-goes, in-vain; from-him away

ni-nă-ălĕrăihtł ko tenagołon. Yor tłĕtĕ rĕłnĭk, īrŭ. Tse eit
she-escapes-often the girl. About-her the-night he-spent, in-vain. And that

kotormen yetatłkon eit, tseyerotse rél'é nonetsen no-tsorodiłkon.
morning it-began-to-dawn there, and-so then on-the-other-side we-made-a-fire.

Ko kĕtłĕskă kŭn kătsĕn ko-ĭłtlăk; eite rél'é rūzŭntsĕ mĕ-tłă-ă-nŏ-ĭnīhtłă:
That slime the-fire upon he-drags; this then well it-is-not-cooked:

yĕrŏtsĕ yerĕłtŭt. "Akĕ!" yŭdĕnī ko tenagołon, yĕnīł'ăn
thus he-sucks-it. "Dirty-thing!" thinks-of-him the girl, she-looks-at-him

toruno. ătłĕyĕ-łō mātskōk-tĕn'ă kō te-tanen. Tseyerotse keré'on
whilst. And-it-was a-large-gull-man the one-doing-so. And-so he-had-eaten

to-rotłoron, łetyi kun ro na-radeyo. Yetoruno ko kăkădlă
after-that, (through) the smoke-hole again out he-went-back. Meanwhile the stump

rŏtŏkŏ dani'one, eite rałte me tŏkŏ nŏ-tsĕdŏ'ŏih ăte-kŏtŏrmĕntŏr.
on-top which-is-set-across, this also her on-top-of we-put-back every-morning.

Tseyerotse yar ledo, ăte-dzān-tŏr: rŏrăro-nŏ-rŭdĕyŏ
And-so in-the-house she-stays, every-day: the-way-that-she-may-go-out

tsă-rădĕn. Yur rŏlŏntĕ dzan eit dzan rélet. Tse yur dzan, notoko
there-is-not. Some many days there the-day she-passed. And a-certain day, above

łetyi rotsen rā-kĕdădlĕkŭt, itłak. Aruruyeł ko kakadla rotoko
the-smoke-hole from there-is-a-noise, it-is-heard. Then the stump on-top

dani'one tătsĕ tĕ-dĕyŏr tān, tse yŭnłŭrăt tō-nĭdzĕt tō-dŏlĕnĕn.
set-across thus (gesture) became, you-see, and far-away in-mid-water it-fell-in-the-water.

Tseyerotse rél'é ko notaka łetyi ronił'an: yutoko ronten kĕl
And-so then this above smoke-hole she-looks: above unexpectedly a-youth

zŭŭ mĕnił'ăn. Eiten rél'é ko kakadla ta kă ărăt kăł ni-no-dĕnănłtŏrtł.
nice looks-at-her. This-one the stump his foot with away has-sent-flying.

Tseyerotse: "Tŏ-ĭntăte kŏ kūn lĭdŏtĕn? Yar ruzunte
And-so: "What-is-the-matter-with-you here also that-you-stay? A-house nice

ło-'é kun lidoten?" "Kota, ra-dalesenartse antakon." Tseyerotse
is-it also where-you-stay?" "Enough, I-am-disgusted-of-it it-is-thus." And-so

nōdŏrtsĕn ye tse royi kederétlih, tseyerotse rél'é nŏtăkă
from-above her toward in-the-hole he-stretched-a-stick, and-so then up-above

łetyi ro yĕrĕłtăn. Tseyerotse rél'é ta kadzor
(by) the-smoke-hole out he-brought-her. And-so then (under) his armpit

ni-no-yeniłtan. Atłeyé-ło ko kun tĕlĕł-tĕn'ă. Tseyerotse nonana kun
he-put-her-again. And-it-was this other-one an-eagle-man. And-so across again

ye yeł no-no-inaltok. Tseyerotse tās lŏrăt tŏnĕ'ă tū
her with he-took-his-flight. And-so a-sand-bar along upstream the-water

ā-łărăt-tsĕdĕtlŭk, nĭłkăatsĕ tă tĕ-tān, tse-rora nūlăr
we-flap-with-tip-of-the-wings, on-both-sides thus (gesture) he-does, by-which salmon

te-ł'an ko tsikala, ko matskok-tĕn'ă. Eit rél'-ko yenerél'an-ĕ ko
he-catches the old-man, the big-gull-man. There then she-saw-him this

tenagołon. Tseyerotse ko tĕlĕł-tĕn'ă no-notortł. Kayar kun rŭdlĕkăttĕ ye
girl. And-so this eagle-man across-is-flying. A-village also a-large-place her

yeł no-notok, tse łetyi kun no-nerédo. Eit rałte ko ta
with he-flew-to, and (at) a-smoke-hole too he-alighted. There also (from) the his

kadzor dza no-yeniłtan. Aruruyeł teken lora rałte rănŏł tŏ-dălĕtlo,
armpit out he-took-her. And-then the-sticks along but deer-skins are-hanging,

tsō yeł nĭł rŏtăkă tŏ-kĕdlĕyō, zī tĕnă-kălă ĭntĕn ko
caches also each-other above are-put-up, merely there-is-nobody, even so this

teleł-ten'a kĕłŏkĕn yān ko kayar ledo, eiten mĕyūlnĭken. Tseyerotse:
eagle-man one only (in) this village stays, the-one who-has-taken-her And-so:

"Noyéka royi ne'oih," mizeni. Tseyerotse royi réyo.
"Down in-the-hole go," we-say-to-her. And-so in-the-hole she-went.

Tseyerotse: "Ro'é nŏ'ŏ yur nĕlăn yar letloye, eite tsen
And-so: "You-see over-there some meat in-the-house which-is, that from

kuru'on," yełni. Nĕlăn zuu ko yar letlo, tse eite tsen keré'on,
eat-some," he-says-to-her. Meat fine in (this) house is, and it from she-ate-some,

kĕtłă-kăt. Notoko rałte tena-ade-ni-rodalenen. Tseyerotse yar ronił'an:
being-hungry. Above however we-disappeared. And-so the-house she-looks:

yar ruzun, yur ken tetłeke eit letlo. Rănŏy nĕlăn zuu letlo: eite
the-house is-nice, some thing all there is. Deer meat nice there-is: it

tsen keré'on. Rănŏy tłăkă yeł yar keletlo: yur eite yeł
from she-ate-some. Deer sinew also (in) the-house there-is: some (of) it with

yur tăbīł yeł, yur tāak yeł, yur kăkĕn yeł, ken tĕtłĕkĕ yī-ītālrŏn.
some nets also, some parkies also, some shoes also, thing every she-began-to-make.

Rănŏy kātsĭh yĕł kĕītālrŏn. Tseyerotse yen-yiroihe tłi
Deer pants also she-began-to-make. And-so the-things-which-she-makes out

no-leyaih, tsō bărā rałte ta-alaih. Tseyerotse ko-tałlenik.
she-takes, (at) the-cache's edge also she-put-them. And-so she-has-begun-to-work.

Tseyerotse kota eit royan ko-taldo'é. Ko kéla mo-kŭn
And-so now there only she-has-begun-to-stay. That youth her-husband

a-łtlat; eiten tsĕn neñkoroten'a lonna atłtsin; mĕ-tĕn'ăkă rultlat.
became; him from people many she-made; her-children there-began-to-be.

Yakanyoza na-ałtaih. Tse yur rólonte eit nŏ-rŏdăłtłĕt. Tse
Babies she-brings-forth. And some many-times there she-passed-the-year. And

yet yŭr sān rélet, tse roĭhtsĕn rŏtälkŏtł. Yur tłi
there a-certain summer she-passed, and in-the-fall it-began-to-freeze. Once out

niyo aru, ăn-rŭ ni-niyo tse rél' rétsar, tă kăyăr
she-went near-by, a-lone-place she-went-to and then she-wept, her village

ror-tādlĕkărtĕn, eit rŏkăt. Tseyerotse yido no-ideyo,
from-which-she-ran-away that-place wishing-for. And-so in she-went-again,

toruno me-ten'aka yeł mo-kŭn yeł yar dăłlĕtłĕ: yar tĕn'ă
while her-children also her-husband also in-the-house stay: in-the-house people

lon. Tse to-kŭn kala ni-no-ideyo, tse: "Ro to-netaye
many. And her-husband at-the-side-of she-went-back, and: "Oh! what-is-this

kŏtnī-tū se kŏkă no-nĕ-tāltlĭn?" ko mo-kŭn ni. "Tłi nĭnyŏtĕ
tear-water me upon down-has-dropped?" the her-husband says. "Out when-you-went

tŏ-dĕrĕnnī?" "Nĕdăn, to-dĕsnīlă"; yełni. "Tłi ninyote
what-did-you-say?" "No, I-said-nothing"; she-says-to-him. "Out when-you-went

réntsar-é? to-derénni?" Tse yur tłetał rél'é mo-kŭn
did-you-weep? what-did-you-say?" And some-time during-night then her-husband

yŭdĕłkăt: "Rō'ĕ dzan tłi ninyote réntsar-é?" yełni.
questions-her: "You-know to-day out when-you-went did-you-weep?" he-says-to-her.

"O'ŏ, dzan tłi nes'ote răstsā̆r: ro'é sa kayar ror-tālĕskā̆rtĕn,
"Yes, to-day out when-I-went I-wept: you-know, my village whence-I-ran-away,

ēit rŏkā̆t," ni, tse to-kū̆n nŏrō̆ł rō̆lĕnĕk. "Kū̆llă!
that-place wishing-for," she-says, and her-husband before she-declares. "Poor-thing!

to-dinitsen! Nĕtā̆kūn kĕtĕtī̆ na kayar rŏkā̆ tĕ-ī̆ntā; dzāl,
what-say-you! Do-not too-much your village wishing-for be; never-mind

ko ī̆sĭ ruzuntse ā̆ntā̆-kŏ kun lido," yełni. Tseyerotse kun
here-indeed well it-is-that also you-stay," he-says-to-her. And-so again

na-radetsar ko tłetał. Tseyerotse tsūkāł a-taltlat. "Kota
she-wept-anew that night. And-so an-old-woman she-began-to-become. "Now

rél' yurru sōdĕł," răyīnīdā̆k, tetłektsen, ko mo-kū̆n yeł. Tseyerotse
then there we-shall-go," they-think, all-of-them, the her-husband also. And-so

rŏtł kā̆tsĕ to-rurultlo: rŏtł rabe te rănā̆lĕtā, ko me-ten'aka,
sleds upon they-put-things: sleds them to are-equal-in-number, those her-children,

tse eite yeł rătāldā̆tł. Ko mo-kū̆n rałte kū̆n-kā̆stł kāntā̆yĕ
and them with they-started. That her-husband then a-poker a-thing-like

kŏ-dā̆tīh. Roī̆htŏr rō̆lŏră kŏrō̆dĕł, tse ko kū̆n-kā̆stł kantaye ko
he-carries. The-winter entire they-keep-going, and that poker thing-like the

mo-kū̆n ko-yĕdātī̆hĕ, eite rél'é ko-ni-rănā̆ih tor, rŏrŏdĭłkōih
her-husband which-he-carries, that then they-stop-to-camp when, they-make-fire

tor, kū̆n ā̆ră roni ī̆dĕtīh, tā̆tsĕtsĕ rałte dī̆tĕnĕrăs.
when, the-fire near-by in-the-ground is-planted, to-this-side then it-falls.

ō̆rŏtsĕ-rora rél'é kŏrō̆dĕł: tĕkē̆n rōt tłi-rādī̆htł, ode
By-this-means then they-go-along: the-stick according-to out-they-start, the-whole

dzan karadihtl. Kū̆n ā̆ră ni-idetlih tso-royan. Tse yur rałtsen
day, they-go-on. The-fire near-to it-is-planted always. And a-certain evening

kūn ni-ratalno, aruruyeł rél'é tłē̆tĕ rarédak. Kotormen
again they-stopped-to-camp, and-that-time then the-night they-spent. In-the-morning

kun roni no-yederétlih, inte ronten dī̆tĕnĕłrā̆ză. Tseyerotse
again in-the-ground he-planted-it, but unexpectedly it-does-not-fall. And-so

nă-rădā̆dlĕyō. Aruruyeł kotormen yōłkō̆ł, aruruyeł nĕdā̆tŏr
they-stood-still. And-then in-the-morning it-dawns, whereupon somewhere

rō̆tsĕn kĕlē̆kă a-ne-zĕlī̆, itłak. Tseyerotse rél'é kota sō̆-dĕtā̆dlĕtsī̆h.
from songs we-sing, it-is-heard. And-so then at-last she-began-to-rejoice.

Tseyerotse yur bā̆abă ko rayołrole tetłeke rŏrŏdī'ōn
And-so some food the which-they-carried all they-have-eaten

kā̆-tă-rădĕyō̆r. Tseyerotse yūnō̆tsĕ-yūdō̆t dza ranidatł, aruruyeł
they-have-become-as. And-so across-downstream out they-came, when

yū̆nĕtsĕ-yūnī̆t ronten, tena kā ronten, neñkoroten'a
opposite-upstream unexpectedly, us (=some one) mourning-for then, people

săkā̆ihă yeł sū-dĕlĕ'ō̆ł. Eit rŏnō̆rtsĕnă nūtsī̆ł gĕtā̆ ronte
children with play. That-place behind an-enclosure large unexpected

tŏ-dlēkăt. Tseyerotse dza ranidatł, tse tĕn ka noko rădĭdătł,
there-is. And-so out they-came, and trail at-the-end-of on-the-beach they-came,

tseyerotse ko me-ten'aka yeł sū'ōl ta-ratan. Atleyé-łe ko soltan ko
and-so the her-children with games they-make. And-it-was that woman the

kayar-ror tădlĕkărĕn, eiten kăt nūtsĭł ta-ratan. Ko tłărŭ
from-the-village one-who-ran-away her mourning-for the-feast they-have. The at-first

mor-yĕrĕdŏ'ōn ŏrŏdŏnă nāltān. Nĭłlōrū yet rădĭrălĕtłĕ,
one-who-lived-with-her a-long-time-ago went-to-sleep. A-long-time there they-stayed,

tse rătĕ kŏnōn rŏtsĕ na-ratałledatł. Tse ătĕ-ŏrŏtŏr, ătĕ-nŏ-rŏdĕlĕktsĕn
and their house toward they-started-back. And every-year, every-year,

yet ne-na-radedihtł. Tse yur yet ne-na-radedihtł, tse na-ratałledatł
there they-return. And once there they-return, and they-started-back

ruyeł ko sołtan yur tsukala kéłoken ta-ałni: "Tsukał, yăkă
when, this woman a-certain old-woman one she-says-to: "Old-woman, behold

tuur-ătŏkŏt ĭsī kŏtă, ko-yĭni-săłlĕdăk, kă-to-ruta, tse tuur-săntă
at-this-time indeed the-end, we-have-begun-to-reflect we-are-like, and next-summer
(we-are-troubled-in-mind)

kota ronten kăkā a-ne-tseltlat tă, an tă, yăkă ŏrtă ronten tĕnă
finally perhaps animals we-have-become if, thus if, behold next-year perhaps us

ădĕ rŏihtŏr rŏtŏlĕł, kon nĕ-nŏ-tsĕłlĕdălă toruno. Kota, ronten
without winter shall-pass, here we-do-not-return while. That-is-all, perhaps

kăkā a-ne-tseltlat ta." Tseyerotse tsukał rŏ ni-do-kedani'on.
animals we-have-become if." And-so the-old-woman to she-left-word.

Eit rotsen rŏlŭkŏtŏrŏt na-ratałledatł, tseyerotse sān rorélet,
There from in-the-spring they-started-back, and-so summer passed,

tse roĭhtsĕn rūlkŏtł, tse răbădĕn roihtor rorélet.
and in-the-fall it-froze, and without-them the-winter passed.

"Kota, kăkā ă-nĕ-rāltlăt," răbĕizĕnī. Kota, rŏih rōn
"That-is-all, animals they-have-become," we-say-of-them. That-is-all, winter a-part-of

nālĕtłkŭs.
I-have-chewed.

THE MAN-EAGLE.

That small bird which lives on the beach and which we call *tokoroldala*, was at first the husband of a very beautiful woman. He lived with her one summer, but when the river froze he gave all his thoughts to another nice-looking woman, who had been his wife for a time. Seeing this, his wife left him and ran away. She went down the river and crossed it, and kept walking. Whilst climbing up the lower bank, it is said that she called the wind. And it began to blow, in the clear spaces between the trees, and she was walking with the wind. Going on

she reached a lake, which she crossed from bank to bank, and she continued to walk along the shore. There she found an old underground house, which she entered, and dark as it was in there she began to feel around on the floor hoping to find some one, but she could find nobody. Then again she felt with her hands on the bunk-shelf, in the dark. And suddenly she laid her hand on something that felt as though wet and soft, and she heard someone, scared by her action and muttering: "Hum! hum! hum." She was afraid, and ran away. She kept on, running the whole day. When evening came and the sun had set, she came to a place where there was good, dry wood, and she built herself a fire. And, as she sat by it, she heard someone coming, following on her tracks. It was an old man, the one who lived in that house by the lake, where she had stopped. Coming near, he sneezed and said: "Good omen! this means that I am not far from that which I am pursuing." And she was very much afraid. At her door, that is, at the place where she was going in and out—for she had camped in the snow—someone had stopped. She looked in that direction, and oh! a hideous-looking old man was there standing at the entrance and looking at her. "Fix a nice place for me by your side," said he. "How can I, old man?" she replied, on both sides of me there are sticks," she said, deceiving him. "Well," said he, "further to the inland behind you." "Oh! how could I, old man? Behind me also there are sticks," she said, deceiving him again. "Well then, opposite, in front of you." And on the opposite side from the fire, in front of her, she prepared a good place for the old man. And he sat himself in that place. It was getting late, and she was so sleepy that she began to nod, through drowsiness. So they both slept awhile. But she heard him getting up, on the opposite side. Then she herself jumped up and rubbing two sticks against each other, she started a fire, for she was in great fright. The rest of the night she kept the fire going, and thus she did not sleep. And at daybreak she put on her clothes. Then, addressing the old man, she said: "Old man, your rags are all torn; how is that?" Then he handed her his clothes, saying: "Mend them for me; I do not know what tearing you mean?" And she just thrust into them a burning ember from the fire, and placing them behind her back, let them burn up. Then she said: "Old man, your parkie also is torn: how did that happen?" And he handed his parkie to her, which she also burnt. In the same way she burnt his whole footwear. The old man stood, all naked, warming himself by the fire and turning his back to the girl, so that he could not see her. At that moment the wind began to blow, and the old man said: "I smell burning clothes; what has happened, that it smells of burning clothes?" "Nothing, old man," said she; "it is only my parkie that has been touched by the fire; it has been singed, and it gives that smell." But, in truth, she had burnt up all his clothes. So she said: "Old man, wait a moment till I go and get some more wood," thus again deceiving him. And, as she was already dressed, she went, unseen by the old man, and quickly taking her sled, off she went, running as fast as she could. She had a great fear of the old man, and so she kept running the whole day. Thus she came to another lake, in which the

long marsh-grass had grown in large clusters, still standing. Taking care not to step on these bunches, she walked between them, at the same time brushing the tops of the long grass with a small stick that she carried. This she did to call the wind, and it proved successful. The wind began to blow, drifting along the snow (and thus covering her tracks). So she felt safe to cross to the other side, and there, in a clearing, she lay down to sleep. Before going to sleep she spied the old man who was pursuing her, as he came out from the woods, on the opposite bank. He had no clothes on, and, naked as he was, he kept running on, from time to time watering on his feet, to keep them warm. (When he came to the opposite bank he saw no more the girl's tracks, which were drifted over, and) she could hear him exclaim: "Have I got her now?" But she was lying down on the other side of the lake; and she planted a stick in the snow, to which she hung a string of deer's hoofs, and the wind, shaking these hoofs, made them sound as a bell, during the whole night.

In the morning, when it dawned, she came out from her camping place, and in the sunshine she started back to see what had happened on the other side, at the place where she had stopped before crossing. She did not reach it, however, for when she was about mid-way to it she saw the old man lying down in the snow, frozen by the cold wind.[1]

From that camp she made for the hills, and crossing them reached the sea-shore, and came to a village.

The next morning, at the first dawn of day, all the inhabitants went off on the hunt. This was their daily occupation. They came back loaded with rabbits, and with the sinews of these she made nets. She made a great many nets, and used them to catch fish. (But she was lonesome, and disliked to be left alone the whole day.) And one morning they had all left her, as usual, when suddenly she saw an old man standing at the smoke-hole and calling her. "How did you come here?" said he. And taking one of the wooden hooks used to hang kettles over the fire, he let it down through the hole, saying: "Get up on this." She was disgusted with the place, and she readily complied. When she had climbed on top, he placed her under his armpit and took his flight. He carried her in this way, flying about, till he came to a smoke-hole, on the side of which he alighted. He then took her out from under his armpit, saying: "Get down in this hole, and let us see what sort of a person I have got." And she went down. "Find the piece of fat that is in a dish on the shelf, to the landward, and eat something," said he; and immediately he disappeared. It was very dark: she groped about, finding nothing at first. Then she came to the shelf: on it a narrow dish was placed, but it contained only the slimy mucus that covers the body of the salmon. She did not eat any of it: she felt no desire of it, but only repugnance for it. She then went back to the place where she had been sitting first, and remained there.

[1] Here and in the literal translation, a couple of lines have been left untranslated, as they are somewhat indelicate. The Alaskan has not been interfered with.

Soon enough she heard a noise at the chimney-hole; it was the old man coming back. He pushed aside the big stump with which he had secured the smoke-hole, and came down through the hole. "Well," he said to her, "did you eat of the fat which is in that dish?" "Yes, old man, I did," she replied; but she was deceiving him, for she had not eaten any. Then the night passed. He came to her with lewd proposals, but she got away from him. Many times did he repeat his attempts, but she foiled them. He spent the night in useless efforts. In the morning, at daybreak, he made a fire, and, taking the salmon slime, he dragged it over the hot coals and ate it: it was not half-cooked. "The dirty (nasty) thing," she thought. It was a large-gull-man.

After he had eaten, he went out again through the smoke-hole, closing this very carefully, every morning, with a big stump. And, not being able to leave the place, there she stayed, day after day. Quite a good many days, indeed, did she spend there, until one day she heard some noise over on the smoke-hole, and the stump that closed it was violently cast aside, and thrown far away in the water. She looked up, and was surprised at seeing a nice-looking young man, who was gazing on her. He it was who had kicked away the stump, and sent it, flying, to a distance. He said to her: "How comes it that you are in this place? Is this a nice house for you to live in?" "Oh," she answered, "I am thoroughly disgusted with it." Then he put down a stick for her to climb up, and he took her out, and placed her under his armpit. This time it was an eagle-man who was taking her. He took his flight, carrying her, across the water, and whilst they were crossing she caught her last view of the old man, the large-gull-man: he was flapping his wings on the water and catching salmon, at the edge of a sand-bar. But the eagle-man was flying along, and came to a large village; there he also alighted at a smoke-hole, where he took her out from under his armpit. Deer-skins were hanging around, stretched on sticks; caches were piled one above the other; but there was nobody, no one lived there but the man-eagle who had taken her.

"Go down in the hole," he said. And she did. Then again he said: "There is meat there, in the house; take some and eat." It was indeed fine meat, and she ate, for she was very hungry. Then she examined the place, and found it good, filled with good things. There was the deer-meat, on which she had feasted; there was also some deer-sinew, with which she began right away to make nets, and parkies, and shoes, and all sorts of things. She made also deer-skin pants. The articles which she made, she took out, and stored them on the front part of the cache. She set to work for good, and made up her mind to remain in the place. The young man took her to wife, and from him she had many children; the place teemed with them after some years.

One year, when summer was over and the first frosts had come, she went out of the house, and retired to a lonely spot, and there she wept, thinking of her native village, whence she had run away. And when she returned to the house, where her husband was, and which was filled with her children, she sat by her

husband's side. "Oh!" he exclaimed, "what is this? a tear has dropped on me!" And, looking at his wife: "What have you been doing out there? Have you been crying?" But she said: "No, no such thing." And he was repeating his questions: "Out there, have you been crying? What did you do?"

And during the night he asked her again: "When you went out to-day, did you cry?" "Yes," she said, "to-day I went out and cried; I was thinking of my native place whence I have run away: I wish I could see it again." So she told all to her husband. "Alas!" he said, "what do you tell me? Do not be longing for your native place; are you not in a good place now?" But she only wept again, that very night. And from that time she began to grow old.

"Well," they thought, "we shall have to go there." Her husband also made up his mind to go. They loaded their sleds, each of the children having one, and they started. Her husband carried a long stick. It was a long journey, that lasted the whole winter. When they made camp, the stick which her husband carried, was planted in the snow, by the fire side, and the direction in which it leaned was the one they followed the next day: the stick was guiding them, and where it pointed, there they went. Always they planted it near the fire.

But one morning, after they had camped for the night as usual, and set the stick up as they always did, it happened that the stick stood up: it did not lean towards any point. They waited, and when the daylight was come they heard voices singing. The woman then began to rejoice. It was time that they should arrive, for their supply of food was almost exhausted, and they came out from the woods to the river, on the other side from the place where the singing was heard, and below it. And then they could see that at that place, across and above them, a mourning celebration was being held. People and children were engaged in games, and further inland a large "nutsił" had been erected. They came, and when they were at the end of the trail, her children joined in the games. And what should be the celebration, but the mourning-feast for this very woman who had run away from the place! Her former husband had been dead some years.

They stopped there for a good long while, and afterwards returned to their own house. But every year they made a visit to this village. On one of these visits, as they were ready to start back, the woman said to one of the old women: "Old woman, these last weeks we have been troubled in our thoughts, something will happen to us. If we should not come back next winter, if the winter passes without you seeing us, you shall know that we have been transformed into animals." And having imparted this intelligence to the old woman, they left. It was spring-time. The summer passed, the fall and its frosts likewise, and the winter passed also, without their coming to the village. "This time they have been permanently changed into beasts," was the saying there.

That is all; I have chewed off a part of the winter

NOTES.

"Tĕlĕł-tĕn'ă"—literally the eagle- ("tĕlĕł") man ("tĕn'ă"). The wonderful beings of the Ten'a lore are generally animals that can assume the human form, or conversely. The story generally ends, as this one does, by their final reversion to the animal, sometimes to the human shape.

"yūtłur," see note on "yūtlīt" after the story of the Raven (p. 305). "Yutlur" is more undetermined than "yūtlīt," equivalent to "somewhere riverward." The use of this demonstrative here can only be accounted for by the fact that the narrator, when telling the story, was at a good distance from the beach, and there were, presumably, woodpeckers in the intervening space. It was during summer.

"sānkăkā," lit. a summer beast ("sān," summer, "kăkā," beast), a name applied to all the small birds that leave the country during winter.

"tŏkŏrŏldălă," more commonly "tĕkĕltłăla," a species of tufted woodpecker.

"tłărŭ mŏr yĕrĕdŏ'ōn," with whom he had first cohabited. The marriage-tie, among the Ten'a, was easily broken, and became permanent, only after children were born. But this generally made it stable, and it was a rare thing for a man to dismiss a wife who had borne him children, as it was common to repudiate one who had not.

"tłŏtnă," the south bank of the Yukon is a plain, covered with forests, lakes and marshes, and is designated as "tłŏtnă"; whilst the north bank is hilly and rugged, and termed "tłăkĕnă."

"nărălŭ-kŏnōn," lit. a winter house; the underground house described in the notes to the story of the Raven.

"kō nŏ-dădlĕbĕdzĕ," a bunk-shelf, seldom found in Ten'a dwellings, but common in the Eskimo houses of the sea-coast. It runs along three sides of the house but not on the entrance side, is generally four feet above the ground, and a little over two feet wide. Eskimos use it to sleep upon. It may have existed among the Ten'a who had intercourse with Eskimo tribes.

"kĕdŏ tsĕdĕtădlĕrăł," we were frightened, *i.e.*, some one was frightened. The first person plural is constantly used as an indefinite subject or object, and this indefinite is often used in place of the third person singular. This will occur more than once in this and other narratives.

"yĕł'ŏsk," he sneezes—sneezing is always an omen, and the one who sneezes, or a bystander, then addresses the occult agent that has caused the sneezing, formulating a wish, but in the shape of a prediction, as here: you foretell (*i.e.*, may you foretell) the thing I am running after.

"īnădlĕkĕt," with a drawl on the last vowel, very emphatic.

"kŏ zī ăłŏŏt," untruthfully; this meaning is evident more from the context than from the words themselves, which properly mean: without a reason.

"tĕkĕn nīł tsĕ nŏ-dĕtĕłdīhtł," she rubs sticks against each other. The Ten'a apparatus consisted of a mouth-piece, of stone or bone, with a cavity to hold one end of a pencil-like stick, the other end being inserted in a similar cavity in a piece of dry wood, a string of rawhide going around the stick and tied at both ends to a bow; when this was moved imparted a rapid rotation to the stick. The first result was the production of very fine wood-dust, which accumulated in a notch managed on one side of the hole. This was easily inflammable, and soon caught fire from the heat developed by the friction.

"sŏrō nō-rēkōr," mend them for me. It is still a practice of Ten'a hospitality to mend the boots and clothes of travellers who stop in the cabin. By remarking that his clothes were torn she was offering her services, and he naturally accepts them. The dialogue is typical of everyday occurrences in Ten'a life.

"kăkĕl, kăkĕlă," more commonly "kĕkĕl, kĕkĕlă," clothes.

"kĕtsăn," grass of any kind. She avoids stepping on it, but walks only "kararataka," or as the Ten'a render it: "in the betweens," so as to leave no trace of her passage, for the wind is filling up her tracks with drifted snow.

"nōnăn," though properly meaning across the sea, is used whenever the expanse of water alluded to is very broad.

"rănŏy-kălĕkŭnă," deer-hoofs. Whether there was any magic power attributed to these primitive bells, I could not ascertain.

"tărăyŭk," salt; seems a foreign word, perhaps borrowed from the Eskimo.

"kŏr," hare or rabbit, common all over Alaska.

"lĕtyī," the smoke-hole or chimney. See the notes on the story of the Raven (p. 308).

"kĕdŏzārătł," a stick with a branch protruding at both ends, used to hang kettles over the fire; the upper hook catches on one of the roof-sticks, and the kettle hangs on the lower hook.

"yĕkătlōt," on the bench or bench-like elevation around the fire-place. See notes on the Raven (p. 308). The fire-place is lower than the surrounding part of the floor-ground, by a foot or more. This elevated platform, and more especially the part of it opposite the entrance, where the master of the house and his family have their beds, is known as "yĕkătlōt" or "yĕkātlŏnă."

"tłōk dzăkă," narrow, might mean also: dirty. The "batskok-ten'a" is described as a person of unattractive habits.

"nūlăr tłĕskă," salmon-slime, "tłĕskă," when used absolutely: "kĕtłĕskă," is the mucus which always coats the skin of the fish. The gull-man eats it, and calls it "the fat."

"mātskōk-tĕn'a." The "mātskōk" or "bātskōk" is larger than the "māts" or "bāts," the common white gull, and is of a brownish colour.

"tấtsĕ tĕ-dĕyŏr," the gesture shows the stump suddenly thrown away.

"tsō," the cache, in its simplest form, is a platform on four sticks; it stands some 5 or 8 feet above the ground, and serves as a store for provisions, which are there safe from the voracity of the dogs and the incursions of the mice. The term "tsō," however, properly applied to a roofed cache, built on four piles, in shape of a small house, the simple platform being called "tŏrtsĕł." Here, the context would indicate that "tsō" is used for "tŏrtsĕł," which is not unusual.

"rănŏy-kātsĭh," deer-skin pants, were formerly used by both sexes, the shape of the upper garment, or parkie, only distinguishing them. The man's parkie is cut straight at the bottom; that of the women is rounded in front and behind, somewhat after the fashion of a chasuble.

"kŏtnı tū," tear-water. The term "kōtnī" seems to have reference to some magic power, either possessed by the tears, or which causes them to flow.

"kŭn-kăstł," lit. a fire-stick, a stick of hardwood used as a poker, generally long and slender.

"dĭtĕnĕłrăzā," the stick not pointing to any direction, they are apprised thereby that they are at their journey's end.

"yūnŏtsĕ-yūdŏt," across-below, or, equivalently, south-west. The speaker here locates the place where they "come out" to the river with reference to the situation of the village; the verb "dzā-rănīdăłł," they came out, is used with reference to the river and woods only.

"yŭnĕtsĕ-yūnĭt," opposite-above, or, equivalently, north-east. Now the village is located in regard to the travellers. The use of "nĕtsĕ," opposite, for "nŏtsĕ," across, as seen in this instance, is rare.

"tĕnă kā," lit. us-wishing-for, desiring us; *i.e.*, desiring or rather mourning for some one, as yet undetermined. They arrive in the midst of a mourning feast, and, consequently, shortly after mid-winter (our Christmas or New Year's Day), this being the time at which these celebrations are held. The preposition "kā" denotes simple desire or wish, as well as regret or mourning: the exact meaning is determined by the context and circumstances.

"nĕūkŏrŏtĕn'ă săkăihă yĕł sŭ-dĕlĕ'ŏł," people and children are having games, as is customary on such occasions, viz., races, wrestling contests, etc.

"nūtsĭł," an enclosure of poles, some 8 or 10 feet high, generally in the form of a square, of about 20 feet on the sides, erected expressly for the mourning feasts, among the Ten'a of the upper tribe. Twice a day, in the morning and evening, a fire is made within the enclosure, and food cooked over it for the whole village. This is distributed on the spot, each one coming with a plate or dish to receive his portion. The devout ones throw a bit from this portion into the fire, to benefit the soul of the person for whom the feast is being celebrated.

"nāltăn," went to sleep The phrase is often used to mean death.

"kō-yĭnī-sāłlĕdăk," we have begun to be troubled in our thoughts, we feel uneasy or restless. This is given as a sign of their impending transformation into animals.

This story was obtained from Andrew Keniyo, a native of Tsenoketlarten, on the Koyukuk River. He also supplied the explanations of the doubtful points.

Ses-leł.
The-Bear-Skin.

Nił-kŭnka raledo, rabe-ten'aka kun notérna. Ranōya lōn
A-married-couple stay, their-children also two. Deer many

te-ł'an ei mo-kŭn, tse yurru radadletłé, san roïh tor
he-catches the her-husband, and there they-stay summer winter during

royeł. Ronten mo-kŭn aba tāltlă. Niłlōru aba nelan,
also. Suddenly her-husband sick began-to-be. A-long-time sick he-is,

tsarałte ketetī ta-ranił. Ronten to-'ot ta-ałni: "Yăkăt
and very-much he-becomes. Suddenly his-wife he-says-to: "Then

to-lestlon-ta, yutłit se midoo yit no-surūłtał, tse so kō
when-I-shall-be-dead, on-the-beach my canoe in put-me-up, and my bow

kūn, se diloya kūn se yeł taka to-rūlał." Tse yet-rotłoron
also, my things also me with up put-up." And there-after

nitkŭdzătse rotāltlette to-ltlon, tse yerotse te-yilor, te-meyederénitsen;
a-short-time was-passed-when he-died, and thus she-did-to-him as-he-had-said-to-her;

tsarałte atsăr tso-royan. Roihtor rorélet, rolūkot kun. Kélte
and she-cries all-the-time. Winter has-passed, spring also. One

kōdormendōna tłi niyo, tsarałte kun no-tałletsar. Ronten yutoko
early-morning out she-went, and again she-began-to-cry. Suddenly up-above

sānkāka to-naledo. "Ran'aih kāt," ni, "iru"; tsarałte
a-summer-bird is-perched. "Speak wishing-to," she-says, "perhaps"; and

yutelatłtłon. Ronten te-deni: "No-kŭn yu'utsena nīł-rŏnĕkă
she-began-to-listen-to-him. Suddenly he-says: "Your-husband over-there a-pair-of-wives

ro datłtłé." "Ken-é? ken-é?" yedetālni; "netūra, se
near (him) keeps." "What-is-it? what-is-it?" she-began-to-say-to-him; "quick, me

noroł te-dini, neldĕla ne tse itenaraslał." Aruruyeł rołitse ye noroł
before say-it, a-necklace you to I-will-give." Then minutely her before

rolenek. Tse yu'ut ye midōya ro ni-niyo: ye yi runatł'an, tse me yi
he-declared. And there his canoe to she-went: it in she-began-to-took, and it in

kăkălă. Tse yet-rotłōron nelděla ye tlo nerélo. Kota atsartse
nothing. And there-after a-necklace him to she-gave. Now-then her-crying

ra-do-derénik. Ronten ses-leł no-no-dōlekūł, tse no-yedetatłtsěł, tse
she-ceased. Then a-bear-skin she-took-down, and she-soaked-it, and

yetaltlŭr, tse nekŏrtse te-yilor, tse ada-yurādlenīk. Inten
she-scraped-it, and being-big she-made-it, and she-wrapped-herself-in-it. But

me yālŏr rūkŭdza, tse yet lokŏle ra-no-atłkot. Tse baaba
its under-chin is-small, and there a-white-(piece) she-put-as-a-patch. And food

lon te-ten'aka ōrō te-tatł'an; tetłĕktsen yar yido-yenilo,
abundant her-children for she-began-to-get; all in-the-house she-brought-it-in,

tse notérke tekĕn nił-tsa-łar-a-dōlekăze derełzuk. Eit rałte to-rołni:
and two sticks forked she-took. Then also she-said-to-them:

"Yur nedatse to-rudeyor tă, mara tu-urtan: kon royān dalorletłé."
"Some how it-happened if, with-them act: here only stay."
(If anything should happen)

Tse tłi no-ideyo, tse ne-no-yedōlekuł. Eit rałte ses a-ltlāt,
And out she-went-back, and she-put-it-on-again. There then a-bear she-became,

tse talyo; netur talyo, niłloru ni-ko'oł. Ronten dłeł gĕtă ro
and started; quick she-started, far-away she-was-going. Then a-mountain big to

niyo, lo'on tŭska rulanten ni-niyo, tse ta kal notérké
she-came, stones flat where-there-are she-stopped, and (on) her sides two (stones)

niłkootsen ni-nilo, ta kāda kătsĕn kun, me tootsen kun, tse kun
(one) on-each-side she-placed, her forehead upon also, her back also, and again

no-tałleyo. Ronten dłeł geta katsen ro-no-łleyo. Aruruyeł ronten
she-started-again. Then the-mountain big upon she-went-up. And-then

sărnŏ roka réyo, yutłura roka réyo: yurru ronił'antse
a-river at-the-end-of she-came, riverwards at-the-end she-came: there looking

ra'oł. Aruruyeł ronten kāyăr rotatł'an: kĕłkĕłtłnă lōnna. Yet
she-goes. And-then suddenly a-village she-descried: anglers numerous. There

rotse talyo. Yet ror niłkŭdzate ni-niyo. Yet no-yedilekuł
to she-started. There from at-a-short-distance she-stopped. There she-took-it-off

tse tĕn'ă a-no-łlelat. Tse yutłen yar rotse talyo,
and a-human-being she-became-again. And riverwards the-house toward she-started,

tse rayitłtłaiha toruno yido-nido. Ronten yet nił-roneka
and they-do-not-see-her whilst she-entered. And then there the-pair-of-wives

dadletłé, tse ro dotoko ni-niyo, tse ra ye yeł ratalyo.
are-staying, and them between she-stopped, and they her with began-to-speak.

Tse notérna reilantsen karałbāts. Ronten to-rołni: "Ken
And two being they-were-boiling-something. Suddenly she-says-to-them: "What
(both of them)

ron me tŏkŏ rā kălă? Ne-keitlŭktsen me toko nalile'on,"
for it on-top-of grease there-is-not? You-laughing it on-top-of bend-your-head,"

yutłiten ałni; "tse ni kor, kenalikettsen me toko nalile'on,"
the-first-wife she-says-to; "and you too, frowning it over bend-your-head,"

yunekoten ałni. Tse yerotse ta-rataltan. Aruruyeł ułōk
the-second-wife she-says-to. And thus they-began-to-do. And-then the-kettle

yit rotse ronānīłtsĕt tse ta-raltlon. Kĕłŏkĕn ne-ketlŭktsen
in towards she-pushed-them and they-died. One laughing

na-ranālebāts, tse kéłoken-kun kenālkĕttsen na-ranalebats.
is-boiled (face or head), and one-again (the-other) frowning is-boiled (face or head).

Tse yutłiten tsorotiya rotsen ne-ketlŭktse ni-yeniłtan; tse kéłoken
And the-first-wife the-door toward laughing she-placed-her; and the-other

yuneko rotse kenalkettse ni-yeniłtan, tse tłi no-ideyo, tse
the-wood-side toward frowning she-placed-her, and outdoors she-returned, and

yutaka ro-no-łleyo, tse ses a-no-łlelat. Tse yutłur-ru
up (the hill) she-climbed-again, and a-bear she-again-became. And towards-the-river

ronił'antse taldo. Yutłur kéłoken ni-ro-na-radakał, tse
looking she-stopped. At-the-river-bank one comes-back-to-land, and

nił-roneka tłitsena ni-ro-no-idakan. "To-no-lorleya," ni;
the-two-wives riverward-from he-came-back-to-land. "Take-up-(the-things)," he-says;

inten ten'a kala. Rūltĭă te-deni, iru. "Ken ron, łĕkĕtŭ,
but people none. Loud he-says-it, in-vain. "What for, in-the-world,

rabe-yin-rollet, kă-te-reita?" Tse to-no-dlekok; yido no-ideyo.
are-they-angry, (as)-it-seems?" And up-(the-bank)-he-ran; indoors he-went-back.

Ronten yutłiten me tse ne-ketlŭk. Ye tse tadle'ih tse
Unexpectedly the-first-wife him to is-laughing. Her to he-says: Hey! and

yor ni-niyo, inten to-ltlon łon! Yunekoten me-yin-rollettse
to-her he-came, but she-is-dead, oh! The-second-wife angry-(looking)

yuneko ronił'an. "Ken ro, łeketŭ me-yin-rollet?" yełni;
on-the-inland-side is-looking. "What for, in-the-world, is-she-angry?" he-says-of-her;

tse yenatłdzĕs. Aruruyeł dzestł yaka ta-atłkăt.
and he-punched-her-in-the-face. Then (his)-fist upwards slipped-up-(on-a-soft-surface).

Yet royeł tłi nīzīł: "Temā yeréronna ko te-tanna?"
There with out he-shouted: "Who (is it) who-killed-them these so-doing?"

nitsen. Inten ta-rabeyiloren kala.
he-saying. But the-one-who-has-done-so-to-them there-is-not.

Tse yero dzāna royeł, yutoko ses ratatł'an, tse ra ye tse
And that day with, up-(on-the-hill) a-bear they-have-seen, and they it after

tāldātł. Tse korokootse ra'oł, ko mo-'oka-te-deyorna. Ra
have-started. And ahead-of-them he-goes, the-one whose-wives-have-died. They

yor niłkŭdzaten ni-rădĕł, inten yet ko-id'oih. Ronten te
from-it at-a-short-distance stop, but there it-is-walking. Suddenly its

tłitł no-dit'on: ronten mo-'ot yilan. "So-'o!" dōnił toruno
scalp it-puts-back: unexpectedly his-wife it-is. "My-wife!" he-utters whilst

yelatłran, tse me yeł te-yetanna rodīrōn.
she-killed-him, and him with those-who-went she-killed-to-the-last.

Rayudenelatłran, iru; tse yutłen kun noko-diletlet,
They-tried-to-kill-her, but-no; and toward-the-river also down-she-ran-(on-all-fours),

tse tetłektsen nenkoroten'a rodiron. Tse yet rotłōron kářă
and entirely the-people she-killed-to-the-last. And there after back

no-tałleyo. Nĭłrŏnă te tłitł kał no-to'oih, tse yurru na-rad'oł
again-she-started. Frequently her scalp off she-puts, and there she-is-going-back,

ruyeł yutoko rotse totson yor ne-ketaltlŭk. Aruruyeł ronten: "Nor
when above from a-raven at-her began-to-laugh. Then suddenly: "But

tsu-untlida," yełni; "ken-lářă nor lo'ona na-kal
you-are-not-comely," he-says-to-her; "for-what-use those stones (on)-your-sides

denalíloye? Kăł no-tila, nor keteti tsu-untlida. Nor, kłé
(which)-you-have? Away put-them, for extremely you-are-not-pretty. See, still

ŏrŏtsĕ te-inta ta, nonła-rolełtse nenkoroten'a nitelotłrala," yełni;
thus you-be if, for-ages-hence (forever) the-people will-not-kill-you," he-says-to-her;

"nĕtŭră, kał no-tila, atokot!" yełni. Aruruyeł kał
"quick, away put-them, right-now!" he-says-to-her. And-then away

no-yetaltlo, inten ta kada katsen to-lo'one, eite zŏkŏł
she-began-to-put-them, but her forehead upon the-one-that-lies-up, that-one at-least

kał no-ti'ola. "A'a, isi rałte sūurŏtsĕn!" yełni. Tse
away she-did-not-put. "Yes, thus now allright!" he-says-to-her. And

no-tałleyo; tse na-rad'oł ruyeł te dzara kał no-to'oihtse
she-was-going-back; and she-is-going-back while her cap (hood) away to-put (the-putting-of)

ra-no-dlenar. Ronten ye-na-rălenik: kał no-yutenal'on,
she-forgot Suddenly she-remembered-it: away she-tried-to-put-it,
(she-forgot-to-put-away-her-scalp).

inte ye-nałlenik. Teken yeł ara te-yeréł'an, iru. Tseyerotse
but she-missed-it (failed). A-stick also with she-worked-it, in-vain. And-thus

te yar no-ideyo tse yido no-iletlet. Ronten
(to)-her house she-returned and in she-trotted-back (on-all-fours). Suddenly

yakanyoza mu-ura neleket, tse yuneko royi ralerał, inte
the-baby his-elder-brother was-afraid, and woodwards in-a-hole he-fled, but

me-ketła teken yoza ulnik tse yo kŭł rotora a-royi-kerélyeł.
his-younger-brother the-stick small took and her neck around thrust-it-to-the-ground.

Inte-royeł: "Suurotsen!" yełni. Tse yet-rotłoron nen tor
However: "Well-done!" she-says-to-him. And thereafter the-ground amongst

ranidatł, tse to 'ōn rutłtsin, tse yet royi rarédatł, tse kota
they-went, and her den she-made, and there in-the-hole they-went, and finally

ses a-ne-raltlat. Roih ron naletłkŭs.
bears they-became. Winter a-part-of I-have-chewed.

THE BEAR-SKIN.

Once there lived a man and his wife, with their children. Many deer did he kill, and summers and winters alike they spent in that one place. But it happened one day that he fell sick. It was a long illness, and slowly but surely he was wasting away. Then he said to his wife, "I have not long to live. When I shall be dead, lay my body in my canoe that is down there on the beach, and put it up in a tree. My bow and arrows and my other things, you will put with me in the canoe."

Shortly after this he died, and his wife laid him as he had bidden her; and she wept. The winter passed; the spring also; and still she bemoaned her loss. Once, very early in the morning, she had gone to the woods to wail as was her wont, when she noticed a small bird perched on a branch above her. "Perhaps he has something to say," she thought; and she listened. The bird spoke: "Your husband is over yonder," he said, "and lives with a pair of wives." "What! what!" said she; "oh! tell me, tell me, and I will give you a necklace of large beads." And the little bird told her all. She went over to the canoe and looked into it: it was empty. The little bird got the necklace, and she dried her tears.

From the cache she took down a bear-skin, which she soaked, and scraped, and stretched. Then she tried it on herself, but it was too tight under the chin, and there she sewed a patch of white fur, to make it fit; and she procured a supply of food for her children, storing it all in the house, and gave them two forked sticks, saying, "If anything should happen, make use of these, and be sure not to leave the place whilst I am away."

After this she left the house, and, putting on the bear-skin, she was changed into a bear. Off she went, speeding on, far, far away, till she reached the foot of a high mountain. There she stopped. The ground was strewed with flat stones, and, picking up four of these, she placed one on each of her sides, one on her back, and one on her forehead. Then she climbed up the mountain, crossed over the summit, and came to a stream on the other slope. This she followed, looking carefully around as she went, until she spied a village in the distance. She could see the people, in crowds, angling for fish in the brook. There she directed her steps, and when she had come within a short distance, she took off the bear-skin and resumed the human form. She then walked to the nearest house, so cautiously that she entered it unnoticed.

There she found the pair of wives. She stood between them, and they began to converse with her. Each of them had her kettle on the fire and was boiling some food. Suddenly she said to them, "How is this? there is no grease on your stew?" "Look," she said to the first wife, "bend your smiling face over it, and see!" "And you too," this to the second, "bend your frowning face over it and see!" They did as she told them, and suddenly grappling their necks, she plunged their heads in the boiling kettles, and they died. The one preserved her smile on her boiled face, and the other kept her frown. She placed the first one, with the smile on her face,

next to the entrance, and the second, with the scowl on her face, a little back towards the inland side. This done, she went away, up on the hill, and again she changed herself into a bear, and there she sat, waiting.

Soon there was a canoe coming back. It stopped in front of the two wives' house, and the man, stepping ashore, called to them: "Come and fetch the load," said he. No one answered. He repeated his summons, shouting it, but not a stir. "What in the world is the trouble now?" He ran up to the house and entered. There his eyes fell on the first wife, her face all in smiles. "Hey!" he exclaimed, and stepped near to her, but he found her dead. He turned and saw the second wife looking at him with a frown from the other side of the house. "What made that woman mad?" he said, and he dealt her a blow in the face. But his fist thumped on a soft, slippery mass of boiled flesh. Then he uttered a loud scream. "Who has killed these women?" he said. There was no answer: the one who had done the deed was not to be seen.

On that same day the people of the place noticed a bear on the hillside, and started to chase it. The man whose wives had been killed was foremost in the pursuit. Though they had come close to it, it did not run away: it kept walking slowly ahead. All at once it shook back the scalp off its head, and he recognised his wife: "My wife!" he exclaimed. The words had hardly passed his lips than she suddenly rushed upon him, and killed him. They closed upon her, but she defeated their attempts, and killed them all, to the last. Down to the village she ran, and killed the remainder of its inhabitants.

Then she started back for her home. On the way she was careful, every now and then, to push back the bear's scalp off her head. A crow came flying by, and began to laugh at her. "You really do look very ugly," he said, "with those stones on your sides. Take them off; they make you look so ugly. Why! no man will ever hunt you, as long as you have such an appearance." So she took off the stones, except the one on her forehead. "Now, this is better!" said the crow and she went her way.

But, meanwhile, she had forgotten to move back the bear's scalp, and now that she thought of it, she could do it no more. In vain did she try to pry it off with a stick: it would not come. So she remained a bear, and thus trotted back into her house. The elder boy was frightened, and ran away to hide himself in a hole; but the younger one took one of the forked sticks, and catching her neck between the prongs, brought her head to the ground. "Well done!" she exclaimed.

After this they took to the wilds; she made a den for herself, and they went into it and became bears, all of them.

I have chewed off a part of the winter.

NOTES.

This story, as well as those which I shall give hereafter, does not properly belong to the class of historical myths, but rather to legendary narratives. The

facts recorded are not now generally believed, though there is sufficient evidence that they were once believed and accepted as historical truths. In this story, for instance, the bear is the avenger of a woman's wrongs, and works its vengeance directly and specially against two women. In several other stories the bear appears as peculiarly hostile to women. The peculiar fear which the Ten'a women have of the bear is traceable to no other source than these legends, in which the bear is always represented as the woman's deadly foe. Now, as this fear exists, and is universal among the Ten'a women, it is fair to conclude that, even though they profess to disbelieve the stories, there is still some vague and unconscious admission in their minds that the stories have been or might have been true. The same may be said, I believe, of ghost-stories among more civilized races. Even if we consider them devoid of any historical value, the stories of this group present a twofold interest to the Ten'a student: 1st, as specimens of the genuine language and literature of this people, and 2nd, as illustrations of native customs.

"sĕs," the black bear, *Ursus Americanus* of the naturalists, the most common species in Alaska. The Navajo call it "shash," which is evidently the same root.

"lĕł," for "łĕł" skin. The initial "ł" is softened to "l," on account of the close connection to the preceding word.

"nił-kŭnka," a married couple, a husband and wife. The word is built as "nił-tsu-kalayu" (see p. 301), viz., with "nił," reciprocal pronoun, "kŭn," husband, and "ka," the pluralizer. Instead of "kŭn," the other term of the relation, "'ot," wife (plural: "oka") could be used, and "nił-'oka" is heard as often as "nił-kŭnka," with exactly the same meaning.

"rănŏyă," deer or caribou (*Rangifer caribou*, of scientists), also known in the upper dialect as "mĕdzĭh."

"lōn," many, for "lōne," which grammar would require.

"ei," the definite article, or the demonstrative which comes nearest to it. Pronounced as a long "i" (continental). I spell it "ei" because all its derivatives in the upper dialect present the two sounds very distinctly: "eit, eiten, eina," etc.; and in the lower dialect have "oi" instead of "ei": "oit, oiten, oina," etc.

"sān," summer. Like most names designating time or place, it can be used adverbially without a preposition.

"rŏih," winter. An exception to the rule just given: hence we have "roihtor," lit. "when it is winter," or perhaps: "roihdo," for "roih dona," during the winter. The fact that the family remained in the same place for both seasons shows that it was a remarkably good location, which could supply food in summer as well as in winter. Usually the Ten'a have to migrate from their winter camps in summer, and conversely, because fish and game have different habitats.

"kĕtĕtĭ tă-rănīł," he becomes very much, viz., ill. This ellipse is common: "keteti te-neta," he is very, viz., sick, etc.

"yăkăt," there, then. The demonstrative adverb, designating the remote place or time. It has here the force of: by and by, after a while, in a few days.

"kō," the bow (and arrows), taken collectively or separately. Nowadays the word is often used for "gun," this arm having superseded the bow.

"dīlŏyă," things, chattels; all the ordinary possessions considered as private property, such as blankets, clothes, cup, knife, etc. It was customary to deposit these at the grave of their proprietor, as no one would use them after his death.

"taka to-rūlał," put up. The Ten'a have adopted the method of burying underground since the Russian times, but previous to these their method was to bury on the trees. Very commonly the canoe was used for this purpose; in other cases the body would be simply wrapped in blankets or skins, and suspended to the branches, as a bundle, swinging in the wind. Or again, it would be deposited on a platform raised on four posts, some 8 or 10 feet above the ground, after the manner of a cache. When it was considered expedient, they even left the body on the level ground, building a sort of little house or erecting a small tent over it. Since they have adopted the custom of burying underground, it has become a general practice among the Ten'a to erect these little houses or tents over the graves, and they are generally kept in very good order, being frequently visited and repaired by the relatives of the deceased.

"sānkăkā," a small bird, literally: a summer animal. The term is applied exclusively to the smaller migratory birds, which leave the country during the early fall and return at the beginning of summer. The geese and ducks are not comprised under this appellation, because they come back during the spring ("rŏlŭkŏt"), and before the real summer.

"răn'ăih kāt," he wishes to speak: elliptical for "răn'ăih tsŏ-rŏkāt." This turn, though very easy to understand, is quite uncommon. I do not remember having heard any other instance of it.

"īnū," perhaps. It is not often that this adverb is used in this sense. It generally expresses an after-thought negation, and is equivalent to: "but no...," "in vain," etc.

"yŭ'ŭtsĕnă," over yonder. The designation is very vague, but as we shall see later that she goes unhesitatingly to the place, it is understood that the bird gave her the full particulars, where it is said that: "rołītse ye noroł rolenek," he told her perfectly about it.

"nīł-rŏnĕkă," a pair of wives; lit. on the inland side ("nĕkă, rŏnĕkă") of each other ("nił"), one on the inland side of the other. A Ten'a was allowed two wives, and when he had them, he used to sit between the two, facing the entrance of the house, *i.e.*, the upstream direction. The wife who ranked first sat at his right hand, *i.e.*, to the river-side, and was styled "yutłiten." The second wife

was at his left, to the inland side, and from this position was called "yunekoten" (see the notes p. 305). If there were no second wife, no use was made of the term "nēkă" or "nĕkŏt" to describe the household; hence its use is particularly appropriate to designate the presence of a second wife.

"no-no-dōlekūł," she took down; lit. she took down again. It is implied that she took it from the cache, this being the normal receptacle for such articles. A cache essentially consists of a platform of sticks, on four posts, standing some 6 or 8 feet above the ground. When nothing more than these essentials is present, it is called "tŏrtsĕł"; if the platform is covered by a small structure in the shape of a cabin, it is designated as "tsō." The cache is the storehouse of the Ten'a. On it the provisions and skins are practically safe from the depredations of mice, dogs, etc.

"lo'on tŭska," flat stones. They are often used as talismans. The most common amulet, the "mādza," is a flat, translucent stone.

"no-yedilekuł tse ten'a a-no-łelāt." The transformation of a human being into an animal by donning its skin, and the reversion to the human form by doffing it, are of common occurrence in the folklore of all the Athabaskans.

"kărăłbāts," they boil something ("ke") undetermined, that need not be specified.

"rā," oil or grease, especially when liquid. The "r" is almost velar.

"ne-kēitłŭktsen...kenălīkĕttsen," thou laughing...thou frowning. These characteristics seem mentioned only to describe the persons more accurately.

"ronānīłtsĕt," expresses an action performed with a strong and quick jerk, on a round object, which is understood to be the heads of the two wives.

"nă-rădăkăł," is canoeing back. "Back," because he has started from the place.

"to-no-lorleya," carry up, viz., the things which are in the boat. Any one, on landing, is welcome to claim this service from the bystanders, but he is absolutely entitled to it from his wife (or wives) and children.

"łĕkĕtŭ," an interjection or adverb expressing displeasure, used in scolding, threatening, etc.

"yutłiten," the first; "yunekoten," the second wife.

"ye tse tadle'ih," he said "Hey" to her. The verb "tege'ih" expresses the uttering of the special interjection "hé," pronounced with a touch of nasality and almost like the French "hein!" It denotes dissatisfaction and contempt, and is of very common occurrence. The nasal sound of the "é," and especially the tone and mode of utterance distinguish it from another "hé," which is simply a wondering interrogation.

"łōn," expressing surprise.

"tĕmā yerērōnna ko te-tānna?" who is the one who killed these? The phrase presents a slight irregularity, the pronoun "tema" being in the singular, and the suffix-noun appended to the verb, "yerēronna," in the plural, as if one would say: "who is the one who have killed them?" or in Latin, "*quisnam eas*

occiderunt?" Another irregularity appears in the use of "te-tanna," those who have done this, instead of "te-netana," those who have suffered this. The grammatical form would be either: "Tema yeréronen ko te-netana?" or "Tema-yu yeréronna ko te-netana?"

"mo-'oka te-deyorna"—whose wives have died—again the plural "te-deyorna," is used for the singular: te-deyoren. A correct speaker would use "te-deyoren" in our days.

"so'o," for "so-'ot," my wife.

"tłītł," the scalp or skin of the head. It appears from the narrative that if she allowed this to stick to her head she would be unable to take off the bear-skin and return to the human form. I could obtain no elucidation about this point. The raven, evidently interested in avenging the death of her victims, succeeds in turning her attention away from this point, by appealing to her vanity, and thus brings the misfortune on her. Why she, or any other bear, should wish to be hunted or killed by men, is another obscure point, about which my authorities could not or would not, supply information. Their inability to do so would suggest that these obscure points are allusions to some antiquated legends of which they were not cognizant.

"yăkănyōza," the baby, *i.e.*, the youngest child. The context shows he was not an infant.

"yo kŭł rotōra a-royi-kerełyĕł." He took the forked stick (as his mother had directed him before leaving) and, pressing it on the bear's neck which he held in the angle, brought her neck to the ground.

"sūūrōtsen!" an interjection of approval, because the boy did as he had been told, or because he showed strength and courage.

"nĕn tor," literally: among the ground, *i.e.*, in wild, unfrequented places.

"to 'ōn rūtłtsin," she made her own den.

"yet royi rarédātł," they all went into it: the form "datł" of the ending implies at least three subjects. They went in to sleep, for the bears get into their dens only to hibernate. The cubs always hibernate with their mother until they are grown.

"ses a-ne-raltlāt," they became bears—the multiplying prefix "ne" shows that more than two, and consequently the three of them, are involved in the statement. The story ends, like that of the Man-Eagle, Teleł-Tena, by the final transformation of men into beasts.

This narrative is in the upper dialect, although it presents no terms or expression exclusively proper to it. Only a few turns, and grammatical forms, occur which enable the student to detect its origin. I copied it from Father Ragaru's transcription and tested the exactness of the language by reading it many a time to various Ten'a audiences. It was always perfectly understood and declared to be quite correct.

Midŏya.

The Canoe.

Ko rél' tsorotan: nił-tsukalayu rél' ledo. Me-l'ăyu
Here perhaps we-live: a-grandmother-and her grandson perhaps stay. His-uncles

nitse adĭhtł. Rabāde ni-rodelelih. Ko me kōya
down-river go-frequently. Without-them it-has-become. This her grandson

ko-yīni-tałlelĕt, tseyerotsen nīłtor tēn'a talyo, tse yar
has-begun-to-muse, and-so (by-a) through-brush trail he-went, and a-house

rotatłtsin. Dza na-ad'oih; māden dzan rŏlĕk, răłtsĕn łāts yăn
he-began-to-build. Off he-goes-again; without-him days pass, at-evening mud only

nelantsen dza na-ad'oih. Orotor me tsukal te-yełni: "Ken
he-being out he-comes-again. Then his grandmother says-to-him: "What

te-rénł'an?" yełni; "to-rénnartse ei łats yan
have-you-been-after?" she-says-to-him; "what-happened-to-you that mud only

inlan?" yełni. "Toneko tiłtsaa ōkō rosnor," yełni.
you-are?" she-says-to-him. "In-the-woods, mice in-search-of I-dig," he-says-to-her.

Tse kéih yeł korüts yeł kōko talyo. Tseyerotsen kéih
And birch-bark also, (canoe)-ribs also in-search-of he-went. And-so birch-bark

yeł korüts yeł no-kedāderan, tseyerotsee ni-tlo-kenīton.
also canoe-ribs also he-brought-back-in-bundles, and-so he-framed-a-canoe.

Tseyerotsen me tsukala ko-yedatłkōn. Tseyerotsen me-koya ketatłrüts
And-so his grandmother sewed-it. And-so her-grandson makes-the-ribs

toruno, me tsukala dzăr oko talyo. Tseyerotsen dzar te-réł'an,
whilst, his grandmother pitch in-search-of went. And-so pitch she-got,

tseyerotsen yiłdzāk, tseyerotse to-yeréton. Aruruyeł
and-so she-pitched-it, and-so he-launched-it. Just-then

yunłur-yudotsen tĕtsĕn zĕnă meł-ra'oł, tseyerotse ye dōra
from-overland-downstream geese black are-flying, and-so them in-front-of

ni-ko tadledzĕl, ye dora no-detokał-to-roron. Inten me
off he-began-to-paddle-quick, them ahead-of in-order-to-canoe-across. But him

dora meł-yul'on, tse ni-ro no-idakan, tseyerotsen yerutłnăr.
in-front-of they-flew-and-passed, and to-land he-paddled-back, and-so he-destroyed-it.

Tseyerotsen kun kĕtĕnĕ na-atłtsin, tseyerotsen kun to-no-yeréton.
And-so again another-one he-made, and-so again he-launched-it.

Aruruyeł yunłur-yudotsen ketīłronodāla meł-ra'oł. Tseyero kun
Just-then from-overland-downstream ducks are-flying. And-thus again

ye dora ni-ko tadledzeł. Aruruyeł kūnūn me dora
them ahead-of off he-began-to-paddle-in-a-rush. And-then again him ahead-of

no-meł-yul'on; tseyero ni-ro no-idakan. Tseyerotse kunun
they-again-passed-flying; and-so to-land he-paddled-back. And-so again

ye-no-rutłnar. Tseyero kunun midoya na-atłtsin, tseyerotse to-no-yeréton.
he-destroyed-it. And-so again a-canoe he-made-again, and-so he-launched-it-again.

Aruruyeł yunłur-yunitsen tsŏrŭl nitse meł-ra'oł. Tseyerotse ye
And-then from-overland-above small-ducks downstream are-flying. And-so them

dora ni-ko no-tadledzeł, tse rŏtĕkăł ye dora ketse
in-front-of off he-rushed-paddling, and at-last them ahead-of backwards-again

no-tadledzeł, tseyero kunun kara ye dora ketse
he-rushed-paddling, and-so again backwards them ahead-of back-again

no-tadledzeł; tseyerotse ni-ro no-idakan. Tseyero kota,
he-rushed-paddling; and-so to-land he-paddled-back. And-so now,

sŏkŏł, teken-tlok, kéih-tlok yeł yi-keitalron. Tseyerotse
(wooden)-ladles, wooden-dishes, birch-bark-baskets also he-began-to-make. And-so

kota, eite réron, tseyero kota tsei yi yerélo. Te
now, these he-has-made, and-so now the-boat in he-put-them. His

tsukal ta-ałni: "Ro aneka łats yan eslantsen dza
grandmother he-says-to: "You-know in-the-woods mud only I-being out

na-rast'ok ru, niłtor ade-turŭłnih," yełni. Tseyerotse ni-ko
I-came-back whence, through betake-yourself," he-says-to-her. And-so off

nikan, eit rărănŏ lekan. Aruruyeł yudoo ronten nĕłtĕn-băs
he-paddled, out-of-sight he-canoed. And-then downstream, oh!-wonder, large-knives

no-idetŭtł; eite ronten nił-nōmen no-dokoih: ye dŏtŏkŏt todoo
stretch-across; these oh! across-each-other are-moving: them between downstream

ror iledzeł. Aruruyeł toneko nitkootsena todoo midoy tĕgă
through he-paddled. And-then on-the-banks on-both-sides below canoes broken

yan rulan. Aruruyeł rakał; aruruyeł yuneko-yudoo kōskŏnōn
only there-are. And-then he-canoes; and-then inland-downstream a-meeting-house

rulan. Eit ni-ro nikan, ko rodootsen yar yido-niyo; eit
there-is. There to-land he-came, there below house he-entered; there

raye-keréł'on. Aruruyeł yuutsen moko ro-ketserełtan: "Noot
they-gave-him-to-eat. And-then from-near-by for-him we-sent-some-one-in: "There
(= a-messenger-came)

keteré'onten yuutse ro-rūyo, nizeni," yełni. Tseyerotse
where-you-will-eat from-hence go-in we-say-to-you," he-says-to-him. And-thus

yu'an ro réyo. Raye-keréł'on; yet rotłoron ta-rayełni:
in-the-other-place he-entered. They-fed-him; there after they-say-to-him:

"Tíh te-tsuł'ik," rayełni, "yaka tŏdzărkăt." Ronten rotsŏr-no-réket;
"Let-us-wrestle," they-say-to-him, "there (in-the-)corner." Behold, a-curtain-was-hanging;

eit rotortsen toyartsen ronten rotlūla roleyaih. Tse tih ta-rał'an, tsarałte
there at-the-bottom from-under behold flames are-coming. And they-wrestle, and

ko nikanen yet royi tsunitar, iru; inte rałte
this who-has-come-in-canoe there in-the-hole we-try-to-throw, in-vain; but however

yar no-noletlek. Tseyerotse kota, roro-rēinăltsōn, ko tih ta-rał'an
the-house across-he-jumped. And-so now, they-are-tired, this wrestling

tse-rora. Tseyerotse kota yutłit rodalkonten royi rayerétak,
by. And-so at-last riverwards where-fire-burns in-hole they-threw-him,

tseyerotse tłi no-tadlerał. Tłi no-ilerał to-runo ra-korodenadlelih,
and-so out he-fled-back. Out he-flees-back whilst the-house-tumbles-down,

tseyerotse tsei yi na-ralerał. Aruruyeł ma ka ronten kün-ten'a
and-so the-boat into he-flees-back. And-then him after, behold, a-man-of-fire

talyo. Tseyerotse ko yunła-yunit nił-nomen no-dokoihten
goes. And-so the ahead-above-(place) across-each-other it-moves-where

tone'u ror no-iledzeł, toruno ma ka kűn-ten'a ra'oł. Tsarałte
above-(this) through he-paddles, meanwhile him after the-man-of-fire goes. And

sokoł ta-ałroihtł, me midoya ditīkoih dona. Tseyerotse
the-ladles he-throws-overboard, his canoe begins-to-burn while. And-so

sokoł ta-ałroihtł, tse kota sokoł rodīnik. Tseyero kota
the-ladles he-throws-overboard, and now the-ladles he-has-finished. And now

teken-tlok kun te-tatł'an, tseyero kota eite rodinik. Tseyero
the-wooden-dishes also he-begins-to-use, and now these he-has-finished. And

kota kéih-tlok kun te-tatł'an. Kota, te yar totłura-todotsen
now the-birch-baskets also he-begins-to-use. Finally, his house riverwards-below-(of)

na-radakał toruno, kota tsă-ăt̆ĕyĕ kéih-tlok to-no-réłrał; tseyero
he-canoes-back whilst, at-last, the-last birch-basket he-threw-overboard; and-so

kota ni-ro no-iledzeł. Kota ko yutłit me midoya kun dikon,
now to-land he-rushes-paddling. At-last there on-the-bank his canoe also burns,

tseyero kota yur ūkă ronitse ru ni-na-rale-koihtł toruno to
and now somewhere an-eddy above there he-is-running-back while his

royar rotse no-tadleral. Kota, ko yar rutłtsinten yido-ilerał,
big-house toward he-is-fleeing-back. Now, the house he-has-built he-enters-in-flight,

tseyero yar kélten rodikon. Kun yar kélte-kun ronikon; kun yar
and house one burns. Also house one-again (another) burns; also house

kélte-kun rodikon; kota, yar kélte royan rulan. Tseyero kota, tsukał
another burns; now house one only there-is. And finally, the-old-woman

ta-ałni: "Tsukał, nor łīk dzăr̆ă!" Tseyero kota me tsukala łik
he-says-to: "Granny, that dog's ear!" And then his grandmother the-dog's

dzara a-dadleküts. Kota, łik talził. Aruruyeł nilkaatsen yōbăr̆ă
ear bit. Now, the-dog howled. And then from-both-sides the-horizon

rotsen no-rotedeni. Kota.
from it-thunders. The-end.

THE CANOE.

There was a certain village, where a grandmother and her grandson lived. The uncles of the young man used to take trips down river. They were gone on one of those. Then the young man became very pensive, and took the trail towards the woods. There he began to build a house. Every day he would go to his work and be absent the whole day; and when he came back in the evening he

was covered with mud. Then his grandmother would say: "What have you been doing? what happened to you that you are all covered with mud?" And he would answer: "Oh! I was only digging for mice, over yonder in the wood." And, after he had finished this work, he went in search of birch-bark and birch-wood fit for canoe-ribs, and he brought these home, carrying them bundled on his back. And he set up his canoe-frame. The old woman sewed the birch-bark, and while he was setting the ribs, she went for pitch. And she got some and caulked the seams and he launched the canoe.

Then he saw a flight of black geese coming up the river from the hill-side, and he rushed to paddle across, so as to get on the other side before they would pass the place. But they flew past him before he could get to them. And he came back to land and broke his canoe to pieces. Then he made another one, which he also launched. And seeing a band of ducks that were flying up-stream from the hill-side, he hurried to paddle off, intending to cross the river before they should reach him. But again they passed, flying in front of him. Then again he broke the canoe to pieces. After this he made a third one, and launched it. And there came some small ducks flying down-stream from the hill-side. Again he hastened to paddle across before they would pass, and at last he succeeded, not only to cross to the other side, but even to come back again to the same side whence he had started before they passed him. And thus he came back to land.

Now then he began to make a number of wooden ladles, and wooden dishes, and birch-bark baskets. And when he had finished these he put them in his boat, and said to his grandmother: "Betake yourself to the place where I used to go, at the time when I was coming back covered with mud every evening."

Then he paddled off and soon disappeared behind a point. And as he was going down the stream he saw far ahead, below him, large knives that reached from one bank to the other, and were moving so as to cross each other, like scissor blades. He went along, however, paddling with all his might, and managed to pass between them, unhurt. Below this place both banks were covered with pieces of broken canoes. He kept going on, till he noticed a large meeting-house, and landed a little below it. There he entered a neighbouring house, and was greeted with a meal. And from one of the other houses a messenger came in, inviting him to another meal. To this invitation he responded, going over to the house whence it had come. After he had eaten they said to him: "Now, let us have a wrestling contest, over in yonder corner." There was a curtain hanging, and concealing the corner, but, at the bottom of it, flames could be seen, issuing from below. He acquiesced, however, and the wrestling began. His opponent was making all efforts to throw him down in the fiery corner; but when he was near to be overcome, he evaded it by making a long jump clear across the house. The wrestlers were getting tired from the struggle. And at last he was thrown down into the fire, and, jumping up, he took to flight.

As he was rushing out, the house came down in a tumble, and he quickly made for his boat. But he was not out of danger, for a man of fire was following

him: he sped back: again he passed the moving knives, the man of fire following after him. His canoe was beginning to burn, and he started to throw his wooden ladles overboard, one by one. And after he had disposed of them all, he used his wooden dishes in the same way. These he finished also, and then threw the birch-bark baskets. He was just throwing off the last one when he came near to his house, a little below it, and landed in a hurry.

And whilst his canoe was ablaze, he ran up, passing the eddy and making for his house. He entered, but the house suddenly caught fire. He ran into another, and this also caught fire, and again into the next, and it also began to burn. There was only one house left. Then he called to his grandmother: "Granny," said he, "the dog's ear." And the old woman bit the dog's ear. The dog howled, and from all around the horizon peals of thunder were heard.—The end.

NOTES.

"rél', rél'é," perhaps, an adverb which properly conveys an idea of undetermination and nothing more. I have rendered it as "perhaps" in the literal translation, but its meaning is entirely dependent on the context. Here, for instance, it very exactly answers to "a certain," or the Latin *quidam*. The phrase really, sounds as: "In a certain village there lived a certain grandmother and grandson." In many instances "rél'é" has exactly the meaning of the colloquial "I guess," "I imagine," "I reckon," etc.

"me-l'ăyu," his uncles, lit. his maternal uncles, his uncles on his mother's side. The word "l'a" corresponds to the Latin *avunculus*, whilst the paternal uncle, *patruus*, is "tōya." The hyphen is used between the possessive object "me" and "l'a" to indicate that the word "l'a" cannot be used without a possessive adjective-pronoun. "Yu" is used as a pluraliser.

"adĭhtł," go frequently, the third person singular is used instead of the plural "radihtł," because the subject is close to the verb and precludes amphibology. The verb is in the frequentative phase, and the ending "dihtł" shows that the subject "me-l'ayu" comprises more than two persons; for two, the verb would be: "a'ŭs"; for one: "a'oih."

"rabāde," the personal pronoun "rabe," them, is contracted with the preposition "āde," without.

"ni rŏdĕlĕlĭh," lit. "it comes to the point that," Latin *eo devenit ut*.

"niłtor ten'a," a trail through, viz., the underwood, a passage through the brush. These trails are found in the neighbourhood of every camp, beaten by the natives when they retire to the brush to satisfy the calls of nature.

"dza na-ad'oih," it will be noticed that this verb is used in this sentence with two meanings, "he goes away" and "he comes back." The reason is that it simply expresses the act of leaving the place where he is to move to another.

"łāts yān nelān," he is only mud. The Ten'a phrase answering to our: he is covered with mud.

"to-rénnăr," what has happened to you. This is a regular past of "tesnar," and probably an archaism. In the actual language "tesnar" has only the irregular past: "teseyor," and instead of "to-rénnar," one would say: "to-indeyor."

"tīłtsăă," mouse, mice. This form belongs to the upper dialect, the lower one uses "tsiłtsaa."

"kéih," means equally the standing birch-tree, the birch-wood and the birch-bark. The context shows that the bark is here meant. The "k" is explodent.

"kŏrüts," ribs, the indefinite pronoun "ke" prefixed to "rŭts," ribs (of boat), and assimilated to the following vowel. The ribs are also made of birch, the small flat sticks used being bent somewhat like our barrel-hoops.

"kōko," in search of. The preposition is "ōko," but as it governs two objects connected by "yeł," it is preceded by a "bracketing ke." The lower dialect might dispense with this "ke," but the upper dialect never omits it.

"no-kedāderān." Again the "bracketing ke." The verb "esraih" is correctly rendered by our western expression "to pack," viz., to carry with an effort generally on one's back, and as a bundle.

"ni tlo kenītōn." He put the bottom in place. The canoe is merely designated by the ending "tih" (Past, "ton,") and the undetermined pronoun "ke," viz., as a thing of the category x, or a hard and long thing. To build a canoe the native sketches on the sand the contour line of the bottom, and plants sticks along this line, forming a sort of mould, wherein the flexible bark shall be laid and forced to assume the desired shape. The building of this outward form is here meant.

"me tsūkāla ko-yedātłkōn," his grandmother sewed it. The strips of bark are sewed together with small roots of spruce split in two, which are called "roīh." So also are patches sewed to cover holes or cracks. The sewing of the bark exclusively belongs to the women, and a man would be ashamed to do this part of the work.

"dzăr," the pitch of the spruce ('*Abies Sitkensis*'), with which all the seams and holes are covered. The pitch is melted, and applied hot.

"to-yerēton," lit. he put it into the water. The prefix "to," stands for "tū," water.

"yunłŭr-yudōtsen," for the directions, see the notes on p. 305.

"tadledzĕł," egedzĕł is a special verb meaning "to paddle in a hurry."

"no-detōkał to-roron," in order to canoe across. The verb "eskaih" (Fut. "taraskał") expresses "to move in a boat," to canoe, to row, to paddle, etc., or simply to be in a boat that moves and thus share in its motion.

"ketīłrŏnŏdāla," one of the numerous species of ducks which are found in Alaska. The term is probably archaic or local, and I could not identify it.

"kūnūn," and, again. A form proper to the upper dialect.

"sŏkŏł," the native ladle or large wooden spoon. It is made of the root of the birch or spruce, so as to secure a proper curve, and is used to distribute the food among the members of the family, and also to apportion the dog-feed.

As this is generally evil-scented, the ladle used for dog-feed is never used for the master's table.

"kéih-tlok," the birch-bark baskets are made of a piece of birch-bark folded at the ends and sewed to a rim of birch-wood; they are oblong, varying in size, and perfectly water-tight. The wooden dishes, "teken-tlok," are hewed out of the wood, preferably the root; they are equally water-tight.

"eit rārăno," out of sight, *i.e.*, behind a point or an obstacle of some kind.

"rŏntĕn," an adverb expressing surprise, wonder, etc. Its frequent use will be noticed. It is often impossible to render it exactly in English. One would approach the meaning by using such phrases as "strange to say," "fancy that," "what was strange was that . . " etc.

"tih te-tsūł'ik," let us wrestle. The phrase "tih tetł'an," lit. "I use strength," expresses the wrestling which is one of the native sports, common to the Ten'a and to the Eskimo. The two wrestlers grasp each other breast to breast, each passing his left arm under the right arm and across the back of his opponent, whilst he gets hold of the opponent's pants or belt in his right hand. They then try to throw each other down. There is always an interested circle of spectators, and the wrestlers are often encouraged by their cheers. If the champions be equally matched several hours may pass before one of them succeeds in bringing his adversary to the ground.

"rotsŏr no-rĕkĕt," a curtain was hanging. The idea of curtain is contained in the root "kĕt," which expresses that something is stretched, and completed by the adverb "rotsor" (from the preposition "tsor," athwart, as an obstacle to), in the way: something is stretched in the way. Natives used skins as hangings curtains, partitions, from time immemorial.

"kün-ten'a," a man-of-fire, lit. a man-fire, a fire-man. This, according to Ten'a belief, is, as the name implies, a human being who is actually and constantly on fire. He pursues the travellers, and woe to these if he succeeds in touching them or their things, because everything he touches burns to ashes. After a long day's travelling in the winter, the eyes become somewhat tired, and overstrained, and when darkness comes it frequently happens that we see sparks at a distance, along the line of trees. These sparks, which I think are mere creations of the strained optic nerves, are believed by natives to be the "kŭn-ten'a," showing through the woods.

"ditīkoih," begins to burn. An instance of the Present Inchoative in a verb of the third flexion, which is a rare occurrence.

"uka ronītse ru," above the eddy. The "ru" qualifies "ronitse," "somewhere above."

"yido īlerał." The verb "egarał," I flee, implies a marked fear causing one to run away.

"łik dzăra a-dādleküts," she bit the dog's ear, viz., to make him howl. The howl of a dog is supposed by many to scare the "kün-ten'a." It succeeds here, and the mischievous being disappears amid the thunder and lightning.

"kŏtă," the end. This adverb has a broad meaning, which may be rendered by: enough, that is all, there is no more, etc. In other connections it simply denotes a change of circumstances from one sentence to another.

This tale, as evidenced by some of the preceding notes, is in the upper dialect. It was obtained by Father Ragaru from some Koyukuk natives. The text here given has been revised by Andrew Keniyo, of Tsenoketlarten, on the Koyukuk River.

Sŏltān-lĕkĕdză.
The Woman-Porcupine.

Ko rél' tsorotan. Eite rél' soltan tobāna tsărā-dādlĕdō.
Here perhaps we-live. Here perhaps a-woman on-the-beach weeping-sits.

Aruruyeł yudotsen tārkŭdzā dza niban, tseyero totłi tobana
And-then from-below a-mink out swam, and-so riverward on-the-beach

me tłitsena ni-ro yiniban. Aruruyeł te-yełni: "Tŏ-dīnī, se
her riverward-of to-land it-swam. And-then it-says-to-her: "What-say-you, my

ka, to-dini?" yełni. Aruruyeł: "Yunetse-yunit kéih yeł
friend, what-say-you?" it-says-to-her. And-then: "Across-above birch also

tsĕbā yeł nił te karanādeyōnte rokāt," yełni.
spruce also each-other among the-place-where-they-grow (I) wish," she-says-to-it.

"Toni eyét rotsen se ka ka to li'oih," yełni. "Nor ne ka
"Upstream there to my tail on up come," it-says-to-her. "But your tail

kŭn-kăstł kanta," yełni. Aruruyeł te-yełni: "Nĕkĕtł tŏzĕyŭk!"
a-poker-stick is-like," she-says-to-it. And-then it-says-to-her: "A-nose too-large!"

yełni; "Neketł tozeyuk! To-deni ărā?" yełni.
it-says-to-her; "A-nose too-large! What-says-she indeed?" it-says-to-her.

Tseyerot yune'u tobana ra-no-idaban. Tse kłé atsar. Aruruyeł
And-so up-above to-the-beach it-swam-up (stream). And still she-cries. And-then

yudotse ronten mĕlāzŏnă dza niban. Tseyero totłi me tłit
from-below suddenly an-otter out swam. And-thus riverward her riverside-of

ni-ro yiniban. Aruruyeł: "To-dini?" yełni. "Yunetse-yunit tseba
to-land it-swam. And-then: "What-say-you?" it-says-to-her. "Across-above spruce

yeł kéih yeł nił te karanadeyonte rokāt," yełni.
also birch also each-other among where-they-have-grown (I) wish," she-says-to-it.

"Toni yet rotse se ka ka to-li'oih," yełni. "Nor ne ka
"Up there to my tail on up-come," it-says-to-her. "But your tail

kŭn-kastł kanta," yełni. Aruruyeł: "Neketł tozeyuk! To-deni
a-wooden-poker is-like," she-says-to-it. And-then: "A-nose large! What-says-she,

ărā?" yełni. Tseyerot yune'u tobana ra-no-ideban, ko
indeed?" it-says-to-her. And-so up-above to-the-beach up-swimming-it-went, this

melazona. Toruno kłé atsar. Aruruyeł yudotse ronten nōy'ă
otter. Meanwhile still she-cries. And-then from-below suddenly a-beaver

dza niban. Tseyero totłi me tłi ni-ro yiniban. Tseyerotsen:
out swam. And-then riverward her riverward-of to-land it-swam. And-then:

"To-dini?" yełni. Tseyerotsen: "Yunetse-yunit tseba yeł kéih
"What-say-you?" it-says-to-her. And-then: "Across-above spruce also birch

yeł nił te karanadeyonte rokat," yełni. "Toni yet
also each-other among where-they-have-grown (I)-wish," she-says-to-it. "Up there

rotsen se ka ka to-li'oih," yełni. "O'o, o'o, o'o. Tła su ułōka
toward my tail on up-come," it-says-to-her. "Yes, yes, yes. Wait my kettle

yeł, se tłăbāza yeł, se bĕtsĭdăkŏkă yeł koko to-ne-tarast'oł," ni ko
also, my round-knife also, my housewife also for I-shall-go-up," said the

soltan. Tseyerotsen tu ułoka yeł, te betsidakoka yeł, te tłabaza yeł
woman. And-so her kettle also, her housewife also, her round-knife also

noko no-kedileyo. Eite ye ka ka to-letlo, tseyerotsen yunan-yune'u
down-the-bank she-brought. These its tail on up-she-laid, and-so across-above

me yeł no-yetalban. Tseyerotsen ye ka katsen rodiłkon; tseyerotsen
with her it-started-to-swim. And-then its tail upon she-made-fire; and-then

ułok tłakat niłkur, tseyerotsen ye ka ken ra'an rodenedetole
the-kettle in-the-fire she-heats, and-then its tail at-the-base-of off a-cut-piece

delebats. Tseyerotsen to nidzeru me yeł ni yobał. Tseyerotsen:
she-boils. And-then water in-middle-of her with it-was-swimming. And-then:

"Ătłĕbă se kĕn!" ni ko noy'a. Tseyerotsen ka tadlerał, ye yeł
"Burning my rump!" said the beaver. And-then its-tail it-jerked, her with

ka tadlerał. Tseyerotsen ko soltan me ka ka to-yiledonen ta-raletlet,
its-tail it-jerked. And-so the woman its tail on up-sitting fell-in-the-water,

tseyerotsen ta-dalekōts, tseyerotsen tăra tonana no-talyo.
and-then she-sank, and-then at-the-bottom to-other-side she-walked-across.

Tseyerotsen tara tonana na-ra'oł. Aruruyeł tu ro
And-then on-the-bottom to-other-side she-walks-across. And-then water out-of

tłé-niłkoih. Tseyerotsen to-lyo. Aruruyeł tuur ronten niłtor
her-head-she-pushed. And-then up-she-went. And-then there unexpectedly through

no-tłi-ideton. Tseyerotsen tuur tseba telo-ro diyo. Tseyerotsen
there-is-a-trail. And-then there a-spruce to-the-top-of she-climbed. And-then

tuur tseba detal'on. Aruruyeł: "Ne inketłtor tu nerélōt é?"
there spruce she-eats. And-then: "(In) your nostrils (did) water flow?"

yełni ko noy'a. "Nedan," ni. "Ne dzĭyīt tu nerélot é?"
says-to-her the beaver. "No," she-says. "(In) your ears (did) water flow?"

yełni. "Nedān," ni. "Ne nĕkŏt tu nerélot é?" yełni.
it-says-to-her. "No," she-says. "(In) your eyes (did) water flow?" it-says-to-her.

"Nedan," ni. "Ne lōt tu nerélot é?" yełni. "Nedan,"
"No," she-says. "(In) your mouth water did-it-flow?" it-says-to-her. "No,"

ni. Aruruyeł toyoko niłtor no-tłi-ideton-ru, aru ronten ses
she-says. And-then down through trail-where-there-is, there unexpectedly a-bear

niłtor no-ted'oih. Tseyerotsen ătłĕyĕ-łŏn lĕkĕdză-soltan ko
through is-going. And-so in-reality (it-was) a-porcupine-woman the

te-deréni'in. Tuur tseba do'on, aruruyeł toyoko ronten ses niłtor
one-who-spoke. There spruce she-eats, and-then down behold! a-bear through

no-ted'oih. Tseyerotsen te-yełni: "Toyoko su-ur niłtor
is-going. And-then she-said-of-it: "Underneath my-elder-brother through

on-tsĭtsĕł," a-deli. Aruruyeł te-yełni: "Tālĕk! nor ne kōl'ŏnă
its-dung," she-sings. And-then it-says-to-her: "Shut-up! for thy liver

itarastuł; talek!" yełni ko ses. Kłé te-yełni ko lekedza:
I-will-trample-on; shut-up!" says-to-her the bear. Again says-to-it the porcupine:

"Akĕ! tsekun se kol'ona rulan é?" yełni. Kłé te-yełni:
"Fie! and-but my liver is-there?" she-says-to-it. Again it-says-to-her:

"Talek! nor ne tłĕts itarastuł; talek!" yełni. "Aké!
"Shut-up! for your gall I-shall-trample-on; shut-up!" it-says-to-her. "Fie!

tsekun se tłets rulan é?" yełni. Kłé te-yełni, aruruyeł
and-but my gall is-there?" she-says-to-it. Still she-says-so-to-it, when

noyartse ronten mor to-yedaratłtlet, tseyero yedaratłtusk. Inten ye
from-below suddenly to-her up-it-climbed, and-then it-slapped-her. But its

tlŏrŏt ra-ka-dleroł. Yatsen kun yedaratłtusk, inte ye
palm she-hit-with-her-tail. (With) the-other (paw) again it-slapped-her, but its

tlorot ra-ka-dleroł. Tsekun yedaratłkuł, inten me lōt kun
palm she-hit-with-her-tail. And-also it-bit-her, but its mouth also

ra-ka-yedleroł. Ta ka ara kun yedaltŭł, inten ye kătlŏr
she-hit-with-her-tail. Its feet with also it-struck-her, but its soles

ra-ka-dleroł. Tseyerotsen ko ses na-radetak. Tseyerotsen lekedza
she-hit-with-her-tail. And-so the bear fell-down. And-then the-porcupine

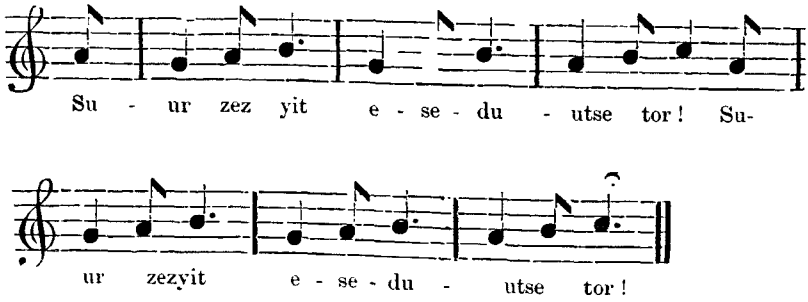
noyéka yor no-réyo. Tseyerotsen ye zĕzyīt to-lyo; eite kun
down to-it descended. And-then (on) its breast up-she-went; this too

ra-ka-radetak. Tseyerotsen kota ses latłran. Tseyerotsen ye
she-hit-with-her-tail. And-then at-last the-bear she-killed. And-then (on) its

zezyit atsŭn: "Su-ur zezyit esedūts tor," ni ko
breast she-dungs: "(On) my-elder-brother's breast I-dung when," says the

lekedza; "Su-ur zezyit eseduts tor!" detalni. Łoih
porcupine; "(On) my-brother's breast I-dung when!" she-began-to-say. Winter

ron naletłkŭs.
part-of I-bit-away.



THE WOMAN-PORCUPINE.

At a certain village, there was a woman sitting on the beach and weeping. A mink came swimming up the river, and it came to the land on the beach in front of her, and said to her: "Why do you cry, friend, why do you cry?" To which she answered: "Because I long to go far up on the other bank to a place where birch and spruce have grown mingled together." Then the mink said: "Ride on my tail, and I will take you up there." But she replied: "Your tail is as slender as a poker." And the mink retorted: "Oh! large nose! large nose! what a silly talk this is!" And it went its way swimming to the other bank far above.

Still she sat crying, when there came an otter, swimming upstream, and it stopped on the beach in front of her, and said to her: "Why do you cry?" To which she answered: "Because I am longing for a place far up on the other bank, where birch and spruce have grown mingled together." The otter said: "Ride on my tail, and I will take you there." "Oh!" she replied, "your tail is like a wooden poker!" Then the otter: "Oh! the large nose"; it said, "what a silly talk!" And it went along swimming far above across the river.

And there the woman sat, still crying. Then there came a beaver, swimming upstream, and on the beach in front of her it came to land, and said to her, "Why do you cry?" And she answered: "Oh! that I could go far above on the other bank, to the place where spruce and birch have grown mingled together." The beaver said to her: "Ride on my tail, and I will take you there." "Yes, yes, yes," she said: "give me time to get my kettle, and my round knife and my housewife." And she fetched her kettle, and her housewife, and her round knife, and brought them down, and put them on the beaver's tail. Then with the woman also on its tail, the beaver started to swim up and cross the river.

But she lit up a fire on the beaver's tail, and on this fire she put the kettle to boil, and in the kettle a slice of meat which she cut from the beaver's rump. The beaver, with its load, was swimming in midstream. "Oh! the heat on my rump!" it said, and it struck the water with its tail, not minding that the woman was on it. Down in the water she fell, and down to the bottom she went, and walking on the bottom she crossed over to the other bank. And walking up to where the water was shallow, she put out her head above the water, and went up the bank. There she found the beaten trail, and she climbed up a spruce-tree, and began to eat the spruce. Then the beaver asked her: "Did water get into your nose?" "No," she said. "And into your ears?" "No," she said. "And into your eyes?" "No," she said. "And into your mouth?" "No," she said. And while they were speaking, a bear came out on the little trail, and began to pace back and forth. Meanwhile she was feeding on spruce, for she was indeed a porcupine woman, and looking at the bear, she said, singing: "Down there my elder brother has covered the place with his dung." The bear said to her: "Shut up, or I'll trample upon your liver!" She answered: "Pshaw! have I any liver?" And

she went on with her singing. "Shut up," said the bear, "or I'll trample on your gall!" "Pshaw!" she replied, "and have I any gall?" Then the bear climbed up to her and with his forepaw he struck her, but she struck his paw with her tail. Again he raised his other forepaw to hit her, but again she struck it with her tail. Then he opened his mouth to bite her, but there also she struck him with her tail. He tried his hind-paws, and on these also she struck her tail. So the bear fell down, and down she came after him, and climbing up to his breast she also struck him there with her tail and killed him. And then she dunged on his breast, and began to sing: "Oh! when I dung on my brother's breast! Oh! when I dung on my brother's breast!"

I have chewed off a part of the winter.

NOTES.

"tsărĕ-dādlĕdō," sits weeping, lit. keeps herself weeping. The usual position of a person mourning is squatting.

"ărŭrŭyĕł," and then, lit. at this moment, at this juncture, from "aru," then or there, and "royeł," with. The upper dialect pronounces the word "ărŭrŏyĕł," the main accent being on the first syllable; the lower dialect pronounces it "ărŭrŭ̄yĕł," with a strong accent on the penult.

"tārkūdza," mink. The upper dialect word; in the lower dialect "tarmāya."

"se ka," a very obscure phrase, which is perhaps for "sa kana," my friend.

"rokāt," wishing for. An ellipse for "rōkā testa," I am wishing for. This ellipse is quite common.

"se kă," my tail. The "k" has a strong aspiration, and consequently between "ka," foot, and "ka," tail, there is no other difference than that the preceding pronoun assimilates before "ka," foot: "sa ka," my foot, and does not assimilate before "ka," tail: "se ka," my tail. The lower dialect, however, does not use "ka," but "ke," for "tail," and would have been more consistently: "se ke."

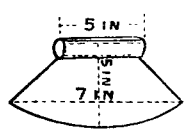
"kŭn-kăstł," a poker or slender stick ("kastł"), used to poke the fire ("kŭn").

"nĕkĕtł," a nose. See further, the note on "ne-inketłtor. (p. 359).

"tōzeyŭk," large. This is the one solitary instance I have of this term, which the narrator explained as meaning "large, capacious."

"to-deni arā?" what does she say? the use of the third person instead of the second, combined with "ara," an adverb of reproachful interrogation, renders the phrase quite offensive to the person addressed.

"su ūłōka yeł, se tłābāza yeł, se betsīdăkōka yeł," the favourite and usual utensils of a good housewife among the Ten'a. The "tłabas" is a round-edged knife used especially to cut the salmon before drying it, and also to open and clean the fish. The "betsīdăkōka" is a piece of skin or cloth with pouches, in which needles, sinew, thread, scissors, knife, and other such articles are kept.



"dĕlĕbāts," she boils, viz., for herself. If it were for some one else, the verb would be "dełbats," or rather "ałbats." Compare "karałbats," p. 345.

"ătłĕbă," an interjection, and adjective, denoting excessive heat.

"ka-tādlerał." The beaver, when diving, always makes a big splash with its tail.

"no-tālyo," she walked across, lit. she began to walk across.

"niłkoih," she pushed, lit. she pushes; she sticks her head out of the water. The verb expresses the action of introducing a thing into a space where it was not.

"to-lyo," she went up. To "go up," when otherwise unspecified, always means to go up the bank. Compare: "to-no-lorleya," p. 345.

"tseba detāl'ōn," she began to eat spruce. In this she is immediately recognized to be a porcupine, by the Ten'a hearers.

"ne-ínkĕtłtōr," in your nostrils. The word "neketł," nose (whence "neketłtor," nostrils) modifies its first syllable after a possessive pronoun, as here. The upper dialect has: "ne-inketłtor," your nostrils; the lower dialect would say: "ne-ninketłtor."

"nerélōt," it flowed, lit. it oozed.

"atłeyé-łōn," an explanatory adverb, which means that the clause which it affects gives the true statement, whilst the others refer to appearances.

"su-ūr," my elder brother. The black bear is, in Ten'a mythology, the elder brother of the porcupine, and the brown bear is the elder brother of the black bear.

"niłtor on-tsītsĕł," through (the brush) the (his) dung (is spread); supposing "on" to be the multiplying prefix denoting quantity, abundance. The phrase might be constructed otherwise: "niłtoron tsitseł": through the brush his dung is (lying); but the meaning is the same. "Tsitseł" is not accurately rendered by "dung," for it properly expresses diarrheous matter, a diarrheous stool, such as the bears commonly pass during summer when they feed on berries. This was sung by the narrator, but I failed to catch the tune.

"tālĕk," a rather rough interjection, well rendered by: shut up!

"ăké," an interjection of disgust, used in connection with anything foul or stupid. The porcupine is supposed to have neither liver nor gall.

"yedaratłtŭsk, etłtŭsk," is correctly to slap, viz., with the flat ("tŭska") of the hand. Further, when the bear uses its hind feet, the proper word for the feet-action, trampling, is used: "yedaltŭł."

"esedūts." Notice that in the song the long "u" is doubled. This phrase is also sung in the narrative, to the notes which I have written at the end. It is a song of triumph, by which the porcupine celebrates its victory.

This story was obtained from Andrew Keniyo, a native of Tsenoketlarten on the Koyukuk River.

Totsonsa.

The Big-Raven.

Sanlarator rulan. Rałte totsonsa tena te ledo. Nił-roneka
Salmon-time it-is. And a-big-raven us among stays. A-pair-of-wives

radadletłé: ro dotokot letan; łik-łeł tsĕdă ka-dadleket. Eit rałte ko
he keeps: them between he-lies; a-dog-skin robe he-has-over-him. There too his

mōzayu eit dadletłe. Eina rałte dłeł tor ko-ratałledatł ranoy
nephews there stay. These through mountains among are-gone-to-hunt deer

oko. Eit rałte dłeł tor tsenidatł. Eit rałte tozayu yeł
for. There then mountains in we-have come. There also his-nephews with

talyo; rałte kun ranoy rukaih. Na-rayił'ortł. Ra ya
he-went; and also a-deer they-shoot-with-arrows. They-flay-it. They its

ałkat tłete-taldak. Yi-meł-tseniletih toruno ronten nen ŏkŏ
body-at spend-the-night. We-are-all-asleep while suddenly the-ground from

satłnik. Toruno totson (ko nĕlănă yeł ko kŏkŏr yeł yuur
we-got-up. Meanwhile the-raven (the meat also the fat also there

keletlo); eit rałte nen oko tełnih, ko mozayu yi-meł-raniletih
are-laid); then too the-ground from he-gets-up, the his-nephews are-asleep

toruno, tseyero yerodi'ih ko nelana. Kota yerodi'ih, yĕnē'ĭhtsĕn.
while, and he-eats-it-all this meat. Yes, he-eats-it-all, he-stealing-it.

Aruruyeł ronten: "Ha! tłărüză yuutse ni-niyo!" ni; zi
Then suddenly: "Ha! a-brown-bear from-yonder came!" he-says; himself

oden yerodi'on in'é. Nen oko ne-ratełtset, tse kakala. 'Yuutse
he has-eaten-it-all though. The-ground from they-jump-up, and nothing. "From-yonder

ni-niyo," yełni. "Rałte ko se-l'ayu kéłoke sereił'an. Ko meł aden
it-came," he-says-of-it. "But these my-uncles one-only have-me-as. Now sleep without
(= my-nephews)

meł-inalegeten," ni, "rora ketaka te-talesta." "Rabe kŏrŏn
I-went-to-sleep," he-said, "whereby above I-began-to-be." "Them during-the-sleep-of
(a-strange-thing-happened-to-me.)

rałte yéka-na-rasleł, rałte ko kene'ihen eslan ta-rar'ana," yinilen. Yet
though I-was-watching, and this a-thief I-am because," he-thinks. There

tonła kłé rōdeł; aruruyeł ranoya ta-rał'an. Ko kokor yeł tena ro
after still they-go; and-then a-deer they-kill. The fat also us to

no-karaleyaih in'é rałte rodi'ih. Tseyerotse kota na-ratałledatł.
they-give-as-a-portion even-though but he-eats-it-all. And-so now again-they-started.

No-rodedeł. Aruruyeł yaka ronten totson ro meł-ré'on;
They-are-going-back. And-then yonder suddenly ravens up flew;

aruruyeł ronten: "Nĕdănyăkă totson meł-i'onten, mĕdzĭh iłtan
then suddenly: "Wheresoever ravens fly, a-deer they-have-found

kanta," radeni ko mozayu. "Ha! ko netatse te-dornite
it-seems," they-say these his-nephews. "Ha! now how do-you-say

eit? Yor-l'a se yeł rultlanen, eiten suu ditsin, eit ta-rar'ana
there? Your-uncle me with who-was-born, he perhaps starves, this on-account-of
mo rŏtăkă yi-rŏzĕn-keilo," mizeni. Ko yet ni-tsenidatł, aruruyeł
him above black-things-hover," he-says-of-him. The there we-came-to, and,

ronten rănŏłtă a-raltlan, mo kor rulane. Rałte na-rayitatł'ortł;
behold! a-male-deer they-killed, its fat there-was. And they-flayed-it;

aruruyeł te tłł ro ne-ketaltlo tseyerotse ronten medzih
then his arm about he-put-up-the-clothes and suddenly (in) the-deer's
(=he-tucked-up-his-sleeve.)

kĕyĭ no-dolenik, tseyerotsarałte ye lūł yeł-talnik. Aruruyeł me tłé
anus he-put-his-hand, and-thus its-larynx he-pulled. And-then its head

ni-ko detadlelih. Ko tseyerotsen: "Ha! me kŏtă ne-dordedar,"
upward began-to-jerk. Now thus: "Ha! it away-from stay,"

mizeni; "ro ko se notła ralelen, eiten naratl'an, eiten anta-kon
we-say-to-them; "that the me before who-is-old, him I-have-seen, he it-was-who

tatse ta-rătan." "No-tordedał," rabeizeni. Tseyerotse no-sałledatł.
thus did." "Go-back," he-says-to-them. And-so they-went-on-back.

Ko aruruyeł ronten: "Hé! sa-kărănĭnĭk!" ni; rałte ko
Now then suddenly: "Hé! a-devil-has-invaded-me!" he-says; but this
(= I feel cramp or stitch.)

rŏtsēttsen. "Eite taras'on to-roron," yinilen toruno. Tseyerotse
he-lying. "This I-shall-eat in-order-that," he-thinks while. And-so

rotse tadletlet. Ronten ra yor rodiłkon ko mozayu.
on-the-ground he-fell. Then they to-him built-a-fire, these his-nephews.

Tuur rałte rodalkon. Aru, kŭn ără tłi-rayil'uł. Rałte:
There then there-is-a-fire. Then, the-fire close-to they-stretched-him. But:

"Sa kā kelék dorłtsi," rabeizeni; "ulaletłtłontsen," mizeni.
"Me mourning-for songs make," we-say-to-them; "I-hearing-them," we-say-of-it.

Kelék. "Se-l'a! mu-ūnĭyĕyă me ko nileyala! Nedatse te-deyoren,
Song. "My-uncle! the-game him away-from got-not! How-thus became-he,

nor torł'anen? medini, yaka se-l'a."
this whom-you-treat-thus? say-of-him, that my-uncle."

Kun kelék: "Se-l'a! aba kăstă! Ma kā sā-tłĕn
Again song: "My-uncle! sick I-seem-to-be! Him in-mourning-of jaw-bones

keréleyāla! ti, ti, ti, ta, ta, ta!" "Ha! anru me-dorli, nor
have-not-moved! ti, ti, ti, ta, ta, ta!" "Ha! apart sing-them, for

tso-netłaka!" mizeni. "Ato-rōnīt," medini, "kenikełtsen
they-are-no-good!" he-says-of-them. "For-anything," say-of-him, "a-torn-open (beast)

tlŏr ragedo, roro'ano! kootsentsena kō tōlō ko-datłtlaktsen,"
in-hands I-had, oh!-wonder! on-its-back (the)-arrow quills are-scattered-and-wet,"

medini, "yaka." "A'a, a'a," mizeni, "ate te-kōtantsen me
say-of-him, "there." "Yes, yes," he-said, "whenever it-happened him

nŏrŏł-ło te-kotan," mizeni, "ko tatsen. Rałte kél eslan dŏnă
in-presence-of it-happened," says-he, "thus in-this-way. And youth I-was when

rałte yutoko mor ko-nest'oih, ko medzih; orote rałte dzan-tor
then on-the-hills for-them I-go-hunting, the deer; then but (in-one)-day

kéłoke nĕldŏrŭyĕ ranoya rotse teslaih, kéłte dzan. Yet
one score (of)-deer to-the-ground I-bring-down, (in)-one day. There

rotłoron tłarŭza yutłura ko-id'oih. Yet rałte me tse tes'oih.
after a-brown-bear riverwards is-walking. Then also him after I-start.

Niłkŭdzate mor ni-nes'oih, tseyerotsarałte yerotsen me dzaya
At-a-short-distance to-him I-come, and-then thus his heart

katsen etłtih; kootsentsena ko tolo ko-dałtlar."
above I-shoot-an-arrow; on-the-other-side (the)-arrow quills are-scattered-wet."

Tseyerotse: "Se-no-korlelon," rabeizeni ronten; "kes'on tso-rokāt,"
And-so: "Feed-me-again," he-says-to-them suddenly; "I-wish-to-eat,"

nitsen. Kokor rabe te-reinaltaye kŭn a-zanilo. Eite
saying. Pieces-of-fat (to)-them equal-in-number the-fire they-put-near-to. These

tetłeke rodi'on: "Ko zi-ałoot se-no-orlelon," mizenitsen. Tseyerotse:
all he-ate: "This for-nothing feed-to-me," saying-of-it. And-so:

"Kota, to-tarastlor," ni. Rałte rabor ni-do-kezani'on: "Yaka
"Now, I-shall-die," he-says. And to-them he-gave-a-message: "Those

so-'oka se tse tū'os," rabeizeni: "kota rałte se-ni-norłnih,"
my-wives me to let-them-come," he-says-to-them: "then too bury-me,"

rabeizeni. Kota, na-ratałledatł, toruno ko an-rayetatłtane
he-says-to-them. Then, they-started-again, whilst this carcass-which-they-abandoned

ra ye ka to-kedatłtłĕł, ra ye-ni niłniktsen. Tseyerotsarałte
they it on chopped-up-branches, they it having-buried. And-thus

na-ratałledatł toruno no-rĕiděno. Ko an-rayetatłtane
they-started-again whilst he-came-back-to-life. This (carcass)-which-they-abandoned

ro ni-no-ideyo; eite tadlerŏł, yetal'ontsen. Tseyerotse
to he-came-back; this he-began-to-devour, having-begun-to-eat-it. And-so

yo'on. Yurru mo-'oka ye tse taldatł. Ei niyo ru
he-eats-it. There his-wives to him are-going. The-place he-came where

ranidatł, rato-kŭn ro ranidatł. Yu'ut ronten ranoy rodi'ih,
they-came-to, their-husband to they-came. Yonder, behold, a-deer he-eats,

tseyerotse ra yor ni-nidatł: "Ro yaka sozayu sor
and-thus they to-him came: "You-know those my-nephews from-me

no-tałledatł toruno no-reseno," ni. Tseyerotse na-ratałledatł,
they-went while I-came-back-to-life," says-he. And-so they-started-back,

mo-'oka yeł, tłiyéka rotsen na-ratałledatł, tseyerotse ka no-rōdedatł.
his-wives with, home towards they-started-back, and-so back they-returned.

Tseyerotse roih non naletłkŭs. Tseyerotsarałte; roihtor rotaltlet,
And-thus winter part-of I-chewed-off. And-so-now; winter is-almost-passed,

yĭnĕslĕn, aruruyeł: "No'otsen ne te to-rékŭts," sărĕdĕnī.
I-think, when: "Over-there you around water-flows," they-tell-me.

Yu'utse kōłkāł midoy yit yunan-yudoo ni-ro neskan.
From-thence almost a-canoe in across-below to-land I-paddled.

THE BIG-RAVEN.

It was during the run of the salmon. A big-raven lived in the camp. There were also his two wives. He slept between them covered with a dog-skin robe. His nephews lived with him. They went hunting for deer, among the hills. He also went with them. And they killed a deer with their arrows, and flayed it, and they stopped in that place camping near the prey for the night.

Whilst they were all asleep, he got up. The meat and the fat were there laying in heaps about the place. And the raven got up, while his nephews were asleep, and he gobbled all the meat. He swallowed it all, stealing it. Then suddenly he shouted: "Ha! a brown-bear has been over here," said he. But he knew that he alone had eaten it. The others jumped up, and, indeed, it was all gone. "The bear came from over yonder," he said. "And my poor nephews who depend on me alone! I was so drowsy for want of sleep, that I finally dozed; oh! what have I done!" But though such were his words, he thought to himself: "During their sleep, I was watching, for I am a thief."

And after this they went on their hunting trip, and killed another deer. It was cut in pieces and distributed among the party, but, nevertheless, he ate the whole of it. Then they started on their way back. And whilst going they noticed some ravens flying up from a place ahead of them. The nephews then said: "Those ravens must have found a dead deer, and they just leave their quarry." But he replied, "Ha! you do not know what you are talking about! Most likely your uncle, my brother, has been starved to death, and the black things are hovering over him." But when they had come to the spot they killed a large buck, very fat. They immediately set to work to skin it, and as they did so, he tucked up his sleeve and pushing his hand through the animal's fundament seized his windpipe and pulled at it; whereupon the head, by sudden jerks moved upwards. Then he exclaimed: "Ha! keep off! I learned this trick from my elder brother; he was the one whom I saw doing it. You had better go." And the party started to move on. But suddenly: "Ha! I have a stitch in the side!" said he. It was a lie, and he was thinking: "I am going to have a good fill." And he let himself drop down. His nephews built a fire for him; and they stretched him near the fire; and he said to them, "Sing the mourning song for my death, whilst I can still hear it." And they sang.

First Song. "My uncle! no game could escape his pursuit! what has happened to him that you should treat him as a dead man? so should we say of my uncle."

Second Song. "My uncle! oh! what a sorrow for me! no songs have been sung over his death! ti, ti, ti, ta, ta, ta!"

"Ha!" said he, "get away with those; they are no good. This is what you should sing: 'He was the man for any kind of game, in whose hands the game was

always torn open, oh! wonder! his arrows would pierce it through and leave their quills in the skin when they came out from the body. Never did this happen when he was not there.' Yes, when I was a young man, I used to go on the hills, hunting for deer; and I would generally bring down a score of them in a day. And the brown-bear would come, from the river bank, and I would follow him, and walk right close to him, and taking aim at the heart, send my arrow through his body, so that the quills were found on the skin of the back." Then suddenly he said to them: "Oh! give me something more to eat; I feel hungry!" So they took pieces of fat, one for each man, and roasted them by the fire, and he ate all of them, saying to every one: "Make me a present of that piece too." After this he said: "Now is my end, I am going to die." And he gave them a message to his wives: "Tell them to come to me here," he said, "and as for you, you will bury my body," said he.

And they proceeded. But before leaving, as they did not take the meat along with themselves, they chopped branches and trees, and covered it with a pile of wood. They then left, and, as soon as they were gone, he was alive again, and went to the deer-carcase which they had left, and he began to eat, and he devoured it hastily. Whilst he ate his wives started for the place, and when they came and found their husband, he was still eating. He said to them: "Well, you know, while my nephews were on their way from here I came back to life."

And then he and his wives started back for their home, and they returned thither.

And so I have chewed away a part of the winter. And I was just thinking: "Winter must be nearly over," when they said to me: "There! there! the water runs through the entrance all around you! Why! there is almost enough of it for me to take my canoe and paddle across the river."

NOTES.

"tōtsōnsā," the big raven. From "totsōn," raven, and the adjective "sa," The whole story seems to have no other purpose than to illustrate the character of the raven as he appears in the Ten'a lore: a liar, a thief and a greedy glutton.

"sānlārātŏr," the season of the salmon, which lasts from about the 21st of June till the middle of August, but the term especially applies to the middle part of it, about July 10th to 21st. "Sanlara" is properly the silver-salmon.

"nīł-ronĕkă radādletłé," he has them to the landward ("neka") of each other, viz., one on the landward, and consequently one on the riverward side. This clearly implies, to the Ten'a hearer, that there are two wives to the one husband.

"ro dōtŏkŏt letān," he lies between them, *i.e.*, the husband. It is unnecessary to

mention him more explicitly, because the preceding statement has made the matter clear.

"łīk-lĕł," dog-skin. A dog-skin robe conveys a disgusting idea to the Ten'a, and the narrator is often interrupted here by the interjection "aké!" from the hearers. The dog-skin is not used by them for two reasons: First. That the dog is a domestic animal, a part of the household, and its skin would be a reminder of lost affection, somewhat—though in a less degree—as the clothes of a deceased relation. Second. That the dog-skin unless very elaborately tanned, always retains a smell, which becomes particularly offensive in damp weather. The raven by not minding these inconveniences shows that he lacks the more refined instincts and the more delicate feelings.

"mōzăyŭ," his nephews, "ōza," is the nephew on the sister's side, or child of his sister: a child of his brother would be called "me-yaa." The plural "mozayu," belongs to the upper dialect; in the lower dialect the word is: "mo-ozaka."

"tsenīdātł," the first person plural standing for the indefinite "on" of the French and, consequently, used in narratives for any other person of the verb.

"ăłkāt," a peculiar preposition, which means: at the dead body of.

"sātłnīk," the first person plural, for the third singular.

"tłărüza," a brown or cinnamon bear, *Ursus Richardsonii* of the naturalists. It is much fiercer than the common black bear, and about the only animal of the Alaskan forests which the natives fear.

"zī ōděn," or "ōděn zī," he alone, by himself.

"se-l'ăyu," my uncles. He speaks of his nephews as his "uncles." The narrator explained that he means to induce them to style him "nephew" as a term of endearment. The real meaning is: my nephews have only me in the world to take care of them. He begins a hypocrite's lamentation over the misfortune.

"mĕł āden meł-īnālegeten," without sleep I fell asleep, *i.e.*, having been so long without sleep I finally fell asleep.

"kĕtăkă te-tālĕsta," lit. I began to be above. "To be above," "ketaka testa," means to do, or suffer, something unusual or strange, as it were: to be above comprehension.

"kōrŏn," a special preposition, means: during the sleep of.

"tōtsōn" ravens, the plural is marked by the verb "ro meł-réon."

"mĕdzĭh," deer, cariboo, the word belongs properly to the upper dialect; the word used above, "rănōya," is common to both dialects.

"dītsīn," he starves, evidently from the same root as the lower dialect equivalent; "ditsan." The upper dialect, however, has now lost the use of this word under either form.

"ranōłta," a male deer. The suffix "łta" designates the male, as also in

"łinłta," a male dog. The word "ranołta" is also used by extension to mean: a large deer.

"mo kŏr rūlāne," a fat one, one that was (is) fat. The phrase is a good illustration of the peculiar use of the noun-forming suffixes. "Mo kor rulan," means "its fat there is," or "it has fat;" with the noun-forming "e," which has the force of "a thing which," the whole clause is turned into a relative clause, and becomes: "the (a) thing whose fat there is," or "a fat thing." Animals belong to the inanimate or thing-gender.

"yĕł tālnik," he pulled. The verb "tesnih," to pull, governs its object by means of the preposition "yeł," with. Prepositional verbs are quite common in Ten'a.

"se nōtłă rălĕlĕn," one who is ageing ahead of me: my senior.

"āntă, āntĕ," an adverb having the force of our term: "it is...who..."

"sa-karănīnīk," is the common expression to denote a sudden pain, a stitch or cramp in the body. It really implies that a devil has come into the body of the person. The devil is here expressed by the undetermined pronoun "ke" together with the verb "ranesnih," which applies to the motion of a ghost or spiritual substance. The phrase sounds literally: "some spirit has come into me," and according to the accepted ideas, this is evidently a devil.

"sa-kā," mourning for me. The preposition "kā, kāt," signifies wish or desire, and consequently also regret, mourning. Here this second meaning is evident from the context, since it is a question of making songs: these are always made in mourning for the dead. He feigns to be so near to his death that they should be ready with their mourning songs for him, and he wishes to hear them sung before he dies.

"kĕlĕk," the song. The songs composed by the nephews are given. Even the narrator could not remember the tune to which they are sung. The words in almost all these songs are choice, and the expressions rather enigmatic.

The first song simply says that he was a good hunter, and how did he come to his death? The second is simpler still, and merely expresses the regret that there was not much mourning over him. The irony in this latter seems to impress the Raven, who immediately expresses his dissatisfaction, and suggests a better song in praise of his exploits. This leads him to a comparatively lengthy description of his achievements, and he shows his vanity and pride in the way he boasts of them. The three songs, as given, are fair types of the average mourning song of the Ten'a. They consist of one or two sentences, couched in very good language, praising the dead person, but without any perceptible metre and generally quite prosaic.

"me ko nīleyāla," did not get away from him; lit. was not taken away from him.

"nor torł'ānen," the one whom you treat thus, viz., the one for whom you mourn.

"ma kā sā tłĕn kerĕleyāla," in mourning for him the jaw-bones have not been moved, or perhaps: they have not moved their jaw-bones.

"ti, ti, ti, ta, ta, ta," these have no more meaning in Ten'a than in English.

"tsō-nĕtłāka," it is bad. The regular form, which is never used except in the upper dialect; the lower dialect constantly uses: "tso-tłaka."

"ato rōnit," a form of lower dialect, which one would not expect to find in this story, for: "ate raranit." The meaning is: (good) for everything, for any purpose; and the narrator explained it as signifying: "he was good for any kind of game."

"kenīkĕłtsen," lit. something being torn open. The root "keł" denotes that the thing alluded to must be a flexible or soft thing. That an animal is meant does not appear until the following words "tlor ragedo," where the root "do" manifestly points to a living being, which with the "ke" of "kenīkeł" can be nothing but an animal.

"rŏrŏ'ănŏ," I have no other instance of this word, which was explained as meaning "oh! wonder!"

"kōōtsentsena kō tōlo ko-dātłtlāk," the arrow-quills ("ko tolo") have passed through (the animal's body) and being wet ("tlak") (with his blood), are on his back. The idea is to express that the arrows have been shot with such strength that they have passed through and through.

"a-zanīlo," the first person plural, for the third.

"zī ātłōōt," for nothing; he may mean: gratis, without my giving anything in exchange, or without my being entitled to it; or he may mean: although I do not expect any benefit from it, since I am about to die.

"ni do-kezanī'on," he gave a message, the first person plural, for the third singular, lit. in words ("do") he confided or placed ("zani'on") something ("ke").

"se-ni-norłnih," bury me. Although he uses the present, he expects them to wait till he shall be really dead.

"an rayetātłtāne," the thing (of the living kind) which they have abandoned, *i.e.*, the carcase. The idea of "living thing" is expressed by the root "tan."

"no-reīdĕno," lit. he lived again; Latin: *revixit.* Similarly further: "no-reseno," I lived again.

"roĭhtor rotāltlet," etc. The narrator makes a jocular comment on the common phrase which concludes the stories, and says: the winter is going so fast that the snow is already thawing, and the water from the thawed snow is flowing into the house, so much that I can almost paddle my canoe from this place to the other bank of the river.

The story as given above was supplied jointly by Andrew Keniyo, Ambrose Tsenokoleyala, and another native from the Koyukuk River who has since died and whose name I have forgotten. These four, viz., the Bear-skin, the Canoe, the Woman-Porcupine and the Big-Raven, are good samples of the upper dialect. In a subsequent paper I hope to give examples illustrating the lower dialect.

A DEVIL CEREMONY OF THE PEASANT SINHALESE.

By Brenda Z. Seligmann.

[With Plates XXX–XXXIII.]

The usual "devil dances" of Ceylon are characterised by the wearing of masks and elaborate properties, many of which are figured by Mr. W. L. Hildburgh in his recent paper.[1] At Gonagolla, a remote jungle village in the Eastern Province, a dance of quite unusual type was seen. Like the dances in constant practice in the west and south of the island it was performed to cure sickness, but it began in broad daylight, and continued an hour or two after nightfall.

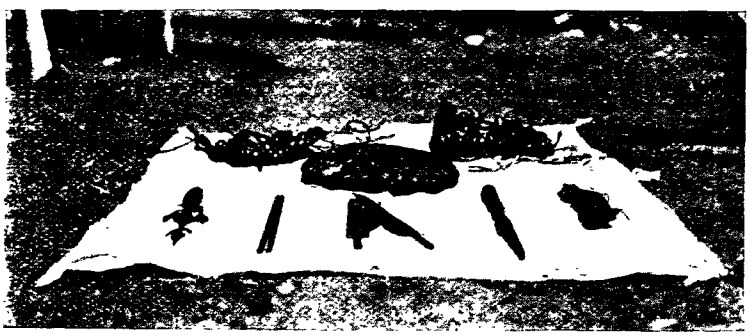


FIG. 1.

Early one morning the *gamarale*, who was also the *katandirale* or "devil-dancer" of the *chena* settlement near which we were staying, came to our camp and told us that he was going to Gonagolla, a village about four miles distant, to perform a dance there, and showed us the properties for it.[2] These are shown in Fig. 1, and consist of the following objects:—

(i) A pair of leathern leglets with bells attached to them.

(ii) A circular wooden shield, *paliha*, roughly painted with lime, the design upon it being well shown in Fig. 7.

[1] "Notes on Sinhalese Magic," *supra*, p. 148.

[2] The *gamarale* of a Sinhalese village is the headman, who is responsible for the cultivation of the village lands and generally directs the agricultural affairs of the community. Bailey defines a *chena* as "a patch of ground cleared from the forest for cultivation. The jungle is burnt down, a crop taken off, and then suffered to grow up again. It is recleared again after intervals of from five to ten years."—*Trans. Ethnol. Soc.*, N.S., vol. ii, 1863, p. 282.

(iii) A long-bladed knife, also well shown in Fig. 7, representing a sword.

(iv) A short-bladed trident called *aude.*

(v) Two sticks, which represented "all kinds of musical instruments."

(vi) Two imitation *ola* books.

The *gamarale* stated that the dance would begin at ten o'clock, but when I arrived at Gonagolla at that time it was to find that preparations had scarcely begun and were being carried on most leisurely. The dance had been arranged by one Vinakorale Apuhami, whose wife and daughter and grand-daughter had all been ill for several years, suffering, as it appeared, from chronic malaria, while the eldest woman also presented many sores of long standing. Vinakorale told me that a travelling fortune-teller (*sastarakeya*) had been consulted and had looked at the patient's hands, and that he had named the spiritual beings *devio* and *yaku,* who were responsible for the illness, and who must be propitiated in order that the patients might recover.

Vinakorale assured me that the organization of this dance had cost him a great deal of money, but he seemed to be confident that beneficial results would ensue. Besides a handsome fee for the dancer, and the provision of a certain amount of food, areca nut, sandal wood and two or three mats, six young banana plants were cut down, the white unopened leaves of which were necessary for the decoration of the structure (*samema*) or altar on which food was placed for the *devio.*

The spiritual beings invoked were Kumara Deva, whom Mr. H. Parker, late assistant director of the Irrigation Department, identifies with Kanda Swami the Katragam God, and his attendants (*piriwari*); Menik Bandara Deva; the Kadawara Yaku, of whom there are 64,000 of each sex; Riri Yaka and Riri Yakini, Sanni Yaka, Marulu Yaka, Madena Yaka and Madena Yakini, Ginigel Kumari.

The *samema,* which is shown in Fig. 2, was an elaborate structure, consisting of two stages supported on a scaffolding of sticks specially cut in the jungle. Both stages were divided into nine partitions, each a little over a foot square, the lower stage being about 3 feet from the ground, and the upper stage some 18 inches higher. The central partition of the upper stage was surmounted by a four-sided pyramid called *gedige,* made of strips of the colourless immature leaves and leaf sheaths of the banana. The *gedige* (well shown in Fig. 2) was built up round a piece of the white centre of a banana stem which had been thrust through the middle of the upper stage. A coconut inflorescence was attached to the top of this. At each corner of the upper stage of the *samema* was fixed a structure called *rupagewal,* consisting of two pieces of immature banana leaf sheath, each bent into a half-hoop and crossing each other at right angles. These are shown in Fig. 2, but in later photographs are hidden by added decoration. To the outer edge of the central partitions on each side of the upper stage two sticks some 3 feet long were fastened. These sloped outwards at about forty-five degrees, and a light horizontal stick was attached to the free ends of each pair. On each side of the *samema* a long coloured cloth was folded over the horizontal stick, and held in

position by the outer bar of the upper stage. Since the *samema* was oriented east and west, it follows that these cloths were directed to the four cardinal points. The lower stage was called the *pudenawa*, and was covered with green banana leaves, on which were laid bunches of ripe bananas and little heaps of rice and curry. The central part of the *pudenawa* was called *tatua*. The western side of the pyramid *gedige* was left open, and bananas, a young coconut, areca nuts, and flowers were put within it. *Ratmal*, the red flowers of *Ixora coccinea*, were put on the central and side decorations, and strands of immature coconut leaves were attached to the supporting posts. Bunches of bananas were placed on the upper stages and hung to the sides of the *samema*. All this is shown in Fig. 3.

The *samema* was the resting place of the *devio* and their attendants, each being or group of beings of this spiritual order being assigned a special part of the *samema*. The food in the *gedige* and the *tatua* was for Kumara Deva, the remainder of the *pudenawa* was spread with food for his attendants, who were also said to assemble in the *rupagewal*. No blood was put on the *samema*, and all food on it might and would be eaten by the villagers after the ceremony.

Separate structures called *pideniya* were built for the *yaku*; the largest of these, called *atakona pideniya*, or eight-cornered *pideniya*, was cruciform, and was prepared for Riri Yaka, and for the Kadawara Yaku of both sexes. The structure of this *pideniya* is well seen in Fig. 4, taken before the offering to the *yaku* had been placed upon it. Fig. 5 shows two other *pideniya* and another object, the *usputua* in course of construction. The triangular *pideniya* was for Riri Yakini, the rectangular *pideniya*, elevated on a tripod called *hambam pideniya*, was for Sanni Yaka, Marulu Yaka, Madena Yaka and Madena Yakini. All the *pideniya*, when finished, were decorated in the same way with the strips of immature banana sheaf and the flowers of *Ixora coccinea*. The third object resembling a *pideniya* and lying on the ground is the beginning of the *usputuwa* for Ginigel Kumari, which in its finished condition is shown in Fig. 6.

All the structures were carefully built according to very old traditional measurements, which, it was stated, still existed, being preserved in long chants.

Before describing the dance it must be mentioned that this was delayed for some time until fresh blood could be procured to mix with the rice which was offered to the *yaku* on the various *pideniya*. Some villagers had gone out early in the morning to shoot a monkey for this purpose, but had failed; at about 1.30 p.m., however, one of them borrowed a gun and soon brought back a monkey, which he had wounded severely, but which he refused to kill until the rice was cooked, as the *yaku* preferred their blood offering to be quite fresh.

Besides plain rice and curry, rice mixed with blood, popcorn, *kurakhan* cakes, and ginger were put on the *pideniya* and the *usputuwa*. Small cups were made of green banana leaves, some of which were filled with blood and water, some with coconut milk, some with turmeric and water, and some with a green fluid, and

all were placed upon the *pideniya.*[1] Finally, small portions of the liver and other solid viscera of the monkey, and pieces of banana soaked in its blood were impaled on the upright skewer-like pieces of stick shown in the photographs of the *pideniya.* The two sick women and the child came and sat down under the verandah of an empty house at the north of the dancing ground.

The *katandirale* took the long knife representing a sword (*kadua*) and censed it; then holding it and some betel leaves in his hands he walked slowly round the *samema* to the beating of a drum, stopping at the west front to recite an incantation. Again he moved slowly round, burning incense at each front of the *samema,* putting betel leaves in each partition, finally leaving the sword associated with Menik Bandara Deva on the south side of the *samema.*

A roughly made wooden arrow was laid on the west front of the lower platform of the *samema,* and a long piece of white cloth was brought to the *katandirale,* who pleated it into many folds in front, and fastened it round his waist, letting the upper end hang over his girdle. While dressing for the ceremony, the *katandirale* stood or sat on a mat so that neither this cloth nor his leglets touched the ground.[2] The *katandirale* also unbound his hair and wound a piece of white cloth round his head. While he was putting on his ceremonial dress one of the villagers made a boat-shaped vessel out of the centre of a banana stem and filled it with blood and meat, and put it on the triangular *pideniya* for Riri Yakini.

There were no women or children present except the three patients, but probably every man and lad above the age of puberty in the village had assembled to watch the proceedings. This was because of the malignant nature of all *yaku,* who gain ascendancy over women and children more easily than they do over men. However, the men took measures to protect themselves as will be seen later. The villagers declared after the ceremony that "white people must be specially guarded or else the white woman's husband would never have allowed her to approach the *pideniya,* which she did, apparently without any fear."[3]

By the time all these preparations were completed, it was three o'clock, but the delay seemed scarcely to be realised by any one but ourselves. The dance began by the *katandirale* reciting an invocation to Menik Bandara Deva, facing the south side of the *samema,* while an assistant brought a lighted torch and walked slowly round the *samema* burning incense; he did the same round all the *pideniya,* but now he held an arrow in his hand as a protection against the *yaku.*

[1] The "green fluid" was probably the juice squeezed from certain leaves, but on this point my notes are not explicit.

[2] A similar dancing cloth is called a *kangalla* by the Veddas, and is worn by some of them in their ceremonial dances.

[3] This intense fear of the *yaku* was in marked contrast to the feeling among the Veddas, with whom the *yaku* are essentially benevolent. The women and children are present at Vedda dances, and it was not at all unusual for the *yaka* of a dead man to make special enquiries about his grandchildren and show them favour.

Perhaps it will not be amiss to mention the place held by iron in the beliefs of the Sinhalese. Iron is considered a protection against all evil spirits; thus a Sinhalese gentleman told me that when he was a child his mother always put a piece of iron under his pillow, and it is a constant practice for children to be protected in this manner. On more than one occasion I have noticed an old iron blade thrust in the bark wall over the doorway of jungle huts, and, Mr. Parker informs me, women frequently wear iron bracelets as a protection against the *yaku.*

The arrow used in this dance was roughly made and had only a wooden point but it was used by the man when burning incense as a protection, for all over the world spirits are easily deceived. Later, when the *katandirale* invoked the dangerous Riri Yaka, he did not consider it safe to bluff this *yaka,* and so rejected the wooden arrow until someone had tied to it the sword of Menik Bandara Deva.

The sword was now used in quite a different sense to that in which it had been employed previously, when it represented an object traditionally associated with Menik Bandara Deva, and thus brought the dancer in sympathy with the *deva.* When used in conjunction with Riri Yaka the fact that it was a sword was forgotten, the important feature being that it was iron, though doubtless the protective influence of the iron was enhanced by lashing the blade to the shaft of an arrow. We were told at Gongolla that the *yaku* have always disliked and been afraid of iron, since one of them saw a sickle, and not approving of its shape, tried to straighten it by pressing one end against his leg, and so cut himself severely.

After reciting the invocation to Menik Bandara Deva, the *katandirale,* still facing the south front, offered betel leaves to him, holding them between his fingers and working his arms from the elbows and wrists. Then he walked slowly round the *samema* with body erect and dignified mien, moving his arms rhythmically in the manner indicated. Again he stopped at the south front and put down the betel leaves and taking the shield in his right hand and the sword in his left, exhibited them to Menik Bandara Deva, waving them in the air, and stepping lightly round the *samema* (Fig. 7). Gradually the dance became more impassioned; at times the *katandirale* swayed his body to and fro and waved the sword and shield, or twirled them round with outstretched arms; then suddenly changing the movement he would step high, with knees bent and body erect, swinging his arms, at first slowly then quicker, springing wildly to and fro, occasionally bringing his heels together, then suddenly, with great shaking of bells, bringing his body forward and salaaming as he did this, thus asking permission to dance (Fig. 8).

Once he stopped at the south front of the *samema* and patting the ground alternately with his feet and working his wrists in time he recited a charm. The swaying and the more violent jumping movements followed each other in quick succession. The salaams were repeated several times and when the *katandirale* saluted us in this way it seemed the appropriate moment to make an offering of money, which the *katandirale* immediately placed in the *gedige.* The dancing

became wilder, and about this time the *katandirale* must have become possessed, for his features assumed the rapt expression characteristic of this condition. At the south front he put down his shield and sword and took a long stick, which is especially kept for dancing. He danced for a short time with this stick (Fig. 9), then stopped at the south front and grasping the *samema* with both hands, bent forward and shook violently, his hair streaming over his face while an assistant stood behind him ready to support him lest he should fall (Fig. 10). All this time the drum sounded wildly, soon the *katandirale* raised his head and put some powdered sandal wood on a betel leaf and holding it on high, advanced to Vinakorale, and placed it on his chest as a sign of favour from Menik Bandara Deva. The *katandirale* returned to the south front of the *samema* where he again bent his head, and while his whole body quivered, he again approached Vinakorale, holding the stick with both hands outstretched. He now placed this across the chest of Vinakorale (Fig. 11) and, while the *katandirale* shifted his feet and trembled, Vinakorale spoke and pointed to the women. Then in the strained hoarse voice of the spirit the *katandirale* promised that they should be cured after seven days. He now returned to the *samema* which he again grasped, bent his head and the spirit left him.

After a short interval the *katandirale* again stood before the *samema* and beginning a chant with the words *aiboho aiboho* (salutation), he exhibited the properties one by one, the sword, the shield, the book and the sticks while a boy beside him burned incense near them. He held the two sticks in various ways and positions, at one time pretending to beat a drum, and then holding the two as though they were fiddle and bow, besides mimicking various other instruments. After this he took a pot which had been placed on the *samema* and holding it in his right hand, marched round the *samema*, halting slightly on each foot as he thrust the other forward, at the same time quickly bending his arms so as to jerk the pot out of his hand, catching it again as he straightened his arm. He stopped at the west front and danced there with the pot clasped in both hands. Then he exchanged the pot for a coconut and with it repeated the dance. Again he danced before the west front and taking some betel leaves censed them, then with feet together shuffled round the *samema*, putting betel leaves in each partition. This he repeated first with sandal wood, then with incense. Next he danced holding a rolled mat in his hand. Soon he took the rough wooden arrow, not to exhibit to the spirits as he had exhibited the other things, but as a protection against Riri Yaka to whom he was now about to offer a cock, but he immediately threw this arrow away with an expression of disgust for its blade was not iron. For a moment the spectators looked on in silent surprise, then one of the group round the *pideniya* picked up the arrow and examined it, and when the *katandirale* explained that as a protection the arrow was useless since it had no iron blade the long knife which had already done duty as the sword of Menik Bandara Deva was quickly lashed to the shaft of the arrow. The arrow was now an efficient protection, and the *katandirale*, holding it in his hand, danced round the *samema* several

times, tapping the ground with his heels and toes and holding himself stiffly so that all his movements were angular. He stopped once at the west front and called to Riri Yaka, "Come and take food and I will give you a cock."

It must here be explained that Riri Yaka is so malignant that although the *katandirale* invokes him, he is careful not to allow the *yaka* to enter his person. For should this happen he would fall to the ground, blood would flow from his mouth and he would be extremely lucky if he escaped alive. Hence the cock's life is offered instead of the dancer's; yet the cock is not killed, for even its life is protected by the bird being struck with burning torches. The cock had been placed on its side under the *pideniya* with its legs tied together; it had, however, struggled to its feet (Fig. 12), but did not attempt to move, and although very roughly treated throughout the dance, it behaved in a quiet manner which surprised me greatly, until I learnt that it was the fourth time that this particular cock had been offered to Riri Yaka. The *katandirale* continued to dance with outspread arms, bending his knees more and more until he moved forward by jerks and bounds; at last he leapt towards the cock but did not grasp it, as some one pulled it away. He retreated, waited a moment, crouched with his legs wide apart, sprang towards the cock and again failed to secure it; at the third attempt, however he seized it and holding it and the arrow in one hand, and a burning torch in the other (Fig. 13), he danced round the eight-cornered *pideniya* bending his body, swaying his arms and rapidly twirling the lighted torch. Whenever in his excited movements he happened to strike the torch against anything and extinguish it, some one in the audience was quick to re-light it for him. As he continued, his movements became less and less controlled, soon he fell back and after being supported for a moment, allowed his head to drop over the *pideniya*, still supported by one of the villagers. All now began to sing, apparently repeating a charm to prevent Riri Yaka from entering the *katandirale* while he was in this exhausted condition. He soon revived, and still holding the perfectly passive cock by its legs, danced again round the *pideniya*, his body swaying and rocking, and his long hair falling over his face, indeed his movements were so excited that he looked as though he might fall at each step. All watched him anxiously, eager to support him and help him to keep his strength to resist Riri Yaka, who was now showing his power. The *katandirale* threw resin on his torch, which as it flared up, protected him and the cock, but he had almost collapsed and was supported by two men, while, with chin thrown back, and motionless except for his lips, he muttered a charm, blowing sharply once or twice (Fig. 15). All this time the drum beat wildly. Soon the *katandirale* shivered, his bells began to tinkle, when, suddenly some resin was burned and as it blazed he leapt forward with a wild yell. Riri Yaka had not entered him. Quaking all over he held the cock's head over the *pideniya*, then two mats were brought and laid cross-wise on the ground in front of the *samema*. The *katandirale* advanced, burning resin and waving his torch; he threw some resin towards the mat, setting light to it so that it flared up as it fell. Then he flung himself on the mat and lying on his back waved his torch; this he

repeated with his head on each arm of the cross formed by the mats (Fig. 15). As he rose, the mats were moved to the next side of the *samema*, and the same performance was enacted hurriedly and excitedly at each of its four sides. This was done to show the *yaku* and *devio* the good things provided and to invite them to eat. Once again, the mats were placed cross-wise in front of the patients, and again the *katandirale* flung himself on them, waving his torch in the four directions, from which it might perhaps be inferred that the *yaku* and *devio* were reminded to remove the woman's disease as well as to take the offerings.

The *katandirale* now fell back utterly exhausted. He was supported and gently lowered on to the mats, a red cloth was laid over him and the cock was tied to his left big toe. The triangular *pideniya* for the offering for Riri Yakini was placed on his abdomen, in order to distract her attention from him; the red cloth was for the same purpose. One villager placed a torch in the outstretched hand of the *katandirale* and supported it there (Fig. 16), another man knotted a piece of areca nut in an upper corner of the cloth, and muttered charms continually as the *katandirale* lay motionless except for the regular rise and fall of his chest. During this time the *katandirale* never lost consciousness completely, for he was not possessed. Riri Yaka and Riri Yakini each in turn had endeavoured to possess him but had failed, although he could not entirely resist their influence and consequently had become very faint. After about ten minutes or a quarter of an hour the triangular *pideniya* was taken away, the cock was untied and four men raised the *kitandirale* to his feet and supported him. They clasped a lighted torch and the sword in the hands of the apparently unconscious man.[1] Soon the bells on his legs tinkled faintly and successive tremors passed from his feet upwards until his knees shook and his whole body vibrated; some resin was thrown on the flame and as it flared, the *katandirale* flashed into life and leapt to the eight-cornered *pideniya* round which he danced with ecstatic expression and dignified movements. Suddenly he stopped, bent his head over the *pideniya*, his hair falling over his face and going to Vinakorale promised the recovery of his wife, daughter, and grand-daughter after seven days, and speaking not in the words of Riri Yaka and Riri Yakini, but in his own person, he assured Vinakorale that the *yaku* had been propitiated by the ceremony performed. He delivered this message, staggering to and fro waving his burning torch, then with a final mad leap and yell he sank exhausted into the arms of his supporters.

Next the 64,000 male Kadawara Yaku were invoked; one of the villagers, Hudu Apuhami by name, standing with torch in hand, droned the incantation, while several others squatting in a row took up the words and repeated them in low wailing tones, swaying their bodies rhythmically to the thud of the drum. The *katandirale*, utterly exhausted by his efforts, lay stretched on the ground and had fallen fast asleep; a man, squatting beside him, continually tied knots in his

[1] During the wild dance the sword had become unlashed from the wooden shaft of the arrow, the *katandirale* had let the wood fall to the ground, and for the rest of the ceremony the *katandirale* retained only the essential iron.

long hair while he muttered charms under his breath. The cock, now recovered from its stupor, stood peacefully under the *pideniya.*

After the incantation to the male *yaku,* a similar one was recited to the 64,000 female Kadawara *Yaku,* in which it was said, " Blood and food are prepared, come and take them."

The sun had already gone down and the light was fast fading, the western sky was aglow with delicate pinks and blues, and the trees in the foreground stood out dark yet vivid while the coconut inflorescence on the *samema* had turned to pale gold. There was a flare of resin and the droning ceased. The eight-cornered *pideniya* was removed and the square *pideniya* brought forward ; the invocations to Sanni Yaka and Marulu Yaka which followed were similar to the preceding two and like them were quite uneventful ; the *yaku* came, accepted their offerings and departed without attempting to show power over anyone.

By this time the *katandirale* had awakened and was ready to dance to Ginigel Kumari, the female spirit in whose honour the *usputuwa* (literally high chair) had been built. He wore cross shoulder straps of *Ixora* flowers and held the *kadua* in his left hand. Two men, who had acted as assistants throughout the ceremony, sang the invocation, while the *katandirale* slowly danced round the *usputuwa.* After a short time the dance became more energetic, his body and arms swayed more and more, till after leaping wildly, bending his head forward, and shaking his hair, he fell back into the arms of two men, and became possessed by Ginigel Kumari ; the drum was now beaten furiously, soon the dancer's head fell forward, his body quaked and with a loud shout he danced wildly. The torch burning at the corner of the *samema* went out, immediately the *katandirale* fell back senseless, and was again supported. Ginigel Kumari could not see, therefore she was angry. Someone brought a lighted torch and held it by the *usputuwa* ; the drum was beaten fiercely, all present repeated the invocation to her. Vinakorale looked extremely anxious, fearing the spirit might depart displeased. Some resin was thrown on the torch and with the flare the *katandirale* revived, then still supported he approached Vinakorale, and shifting from one foot to the other he put both arms on the latter's shoulders, and in the spirit's voice said he was pleased with the offerings and would cure the women within seven days. He returned to the *usputuwa,* and, amidst the furious beating of the drums, he bent his head forward and the spirit left him.

The last and, perhaps, the most impressive dance of all was to Kumara Deva. Night had now fallen and there was no moon, the torches tied to the *samema* lit up the eager faces of the audience, all intensely earnest and excited. A headman from a distant village had just arrived and he was asked to charm the fire before the dance, so that it might not burn the *katandirale* when he put his hand in it. Accordingly, the headman muttered a charm over the burning torch and blew on it sharply.

The *katandirale* began to dance before the west front; an assistant unbound his hair which fell below the waist. This time a very short preliminary dance led

to the *katandirale* becoming possessed by Kumara Deva. The headman who had charmed the fire held two torches crosswise and was again muttering some charms over them, when the *katandirale* approached. Swaying his body and tossing his head, he thrust his hands into the flames to show that they could not hurt him. Then he seized one torch in each hand and, crouching in a squatting position, leapt forward in a series of bounds, at the same time whirling the torches round and round; suddenly he changed his position and marched erect, slowly raising his knees and pointing his toes, swinging the torches in perfect time and whirling them in front, over his shoulders and behind his back with wonderful precision. Their light lit up his face, ecstatic and dignified. Without any warning his movements changed again; crouching low he leapt madly with bounding strides, whirling his torches to the wild beating of the drum. Then springing upright, he spread out his arms and quickly spun round on his toes in front of the tomtom beater. Thus the dance continued, changing from stateliness to frenzy with bewildering rapidity.

As he danced wildly round the *samema* the *katandirale* inspected the food, and at each front he threw resin on his torch, sometimes flinging it towards the ground and lowering his torch, at other times throwing a handful through the flame as high as he could reach, so that the flames burst upwards. Someone pulled one of the plaited leaf decorations off the *samema* and the *katandirale* put it in his mouth. After again burning resin at the west front, the dancer approached the women and waved his torches in front of him. Then the mats were brought and laid crosswise on the ground in front of the *samema*, and the *katandirale* lay on them as he had done before and waved his torch in the four directions. The mats were taken all round the *samema* and then in front of the patients and in a hurried manner, with body quaking, the *katandirale* repeated the performance on each side of the *samema* and in front of the women. Then, waving his torches and followed by assistants who carried the mats, he rushed into the house where the charmed thread responsible for the sickness had been buried; lying on the mats and waving the torches both on the verandah and inside the house as he had done outside, he now purified the place. He immediately rushed out again and then fell back stiffly and was supported by a couple of villagers. After a few seconds, when some resin was burned, he revived and, springing forward again, danced round the *samema*, swinging his torches in perfect time. Presently he seemed to be looking for something, for some food had been stolen from the *samema*; suddenly he crouched down and stretching out his right arm he pointed with his torch and dancing staff to the roof of the house. He remained motionless in this strained position for some moments till someone climbed on the roof and discovered two bananas. The *katandirale*, still possessed by Kumara Deva, walked round the *samema*, solemnly offering them to the onlookers. Everyone refused, knowing well that to accept would proclaim his guilt, and that should he put forward a hand the burning end of the torch would be given him instead of the fruit; should he open his mouth the flame would be thrust into it. The Deva was apparently satisfied

and placed the bananas on the *samema*, after which he showed favour by giving other bananas from the *samema* to the patients, myself and other spectators; at the same time as a special sign of favour to me he heated his hand in the torch flame and held it to my forehead.

The *katandirale* now fed the two women with curry and rice from the *samema* and bananas from the *gedige*, putting the food into their mouths with his hands, and he afterwards took the young coconut from the *gedige*, and held it to their lips for them to drink.[1] Then, going to each woman in turn, he heated a betel leaf in the torch flame and rubbed it on her face, ears and shoulders, then passed it slowly downwards over the face and body to the ground at her feet. Taking his staff he now went up to Vinakorale and promised that the women should be cured within seven days. Before leaving, the Deva took a banana from the *samema* and tossed it in the air; this was scrambled for eagerly, as it was considered very lucky. Some resin was burned, the Deva departed from the *katandirale*, and as he fell back the ceremony ended.

The figures illustrating this communication are from photographs taken by Dr. C. G. Seligmann. The last (Fig. 17) was taken late in the afternoon, and it was necessary to paint in the greater part of the detail in order to produce a print fit for reproduction.

For the following note on the Devil Ceremonies of the Kandyan Sinhalese and those of the North Central Province I am indebted to Mr. H. Parker.

The ceremony "described does not resemble those of the North West Province or the Western Coast."

"No offerings are made by the North West Province Kandians to Sanni Yaka, and I think there are none to Maenik Bandera by the low-country Sinhalese. Skanda is worshipped everywhere as one of the four guardian deities of Ceylon."

"The Kandians, so far as I am aware, do not make offerings to a miscellaneous company of demons in this way. Among them the illness would be definitely attributed to one demon, to whom alone the offerings would be presented. When this is not effective the attack is sometimes found to be due to planetary influences, for which a different ceremony is then performed. But it is quite unusual for more than one ceremony to be tried."

As regards the invocation and propitiation of *Riri Yaka* no doubt these "vary in different parts of the country."

"Among the Sinhalese a special part of the ceremony is the impersonation of a dead man by the dancer who conducts the ceremony, who is called the Aedura. He is often carried out to a burial ground like a corpse, and a sham grave mound being made is deposited beside it, and offerings are then made. The demon being thus led to believe that the afflicted person is dead, will cease to trouble him or her any longer. Some claim that the *Riri Yaka* is a special demon of Ceylon."

[1] Although the child was present at the beginning of the ceremony she was not noticed later.

FIG. 2.—SAMEMA IN COURSE OF CONSTRUCTION.

FIG. 3.—FINISHED SAMEMA.

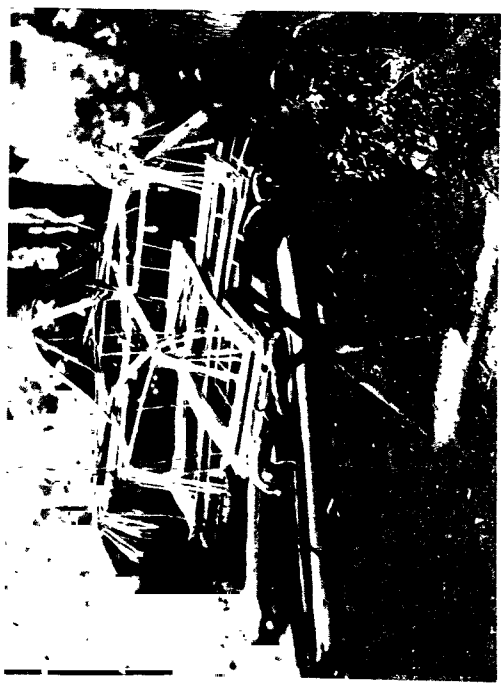


FIG. 4.—FINISHED PIDENIYA.

FIG. 5.—PIDENIYA IN COURSE OF CONSTRUCTION.

A DEVIL CEREMONY OF THE PEASANT SINHALESE.

FIG. 6.—USPUTUWA.

FIG. 7.—THE KATANDIRALE DANCING WITH SWORD AND SHIELD OF MENIK BANDARA DEVA.

FIG. 8.—THE KATANDIRALE SALAAMS TO THE DRUM.

FIG. 9.—THE KATANDIRALE DANCES WITH STICK.

A DEVIL CEREMONY OF THE PEASANT SINHALESE.

FIG. 10.—THE KATANDIRALE IN ECSTASY BEFORE THE SAMEMA.

FIG. 11.—THE KATANDIRALE PROPHESIES THE RECOVERY OF THE PATIENTS.

FIG. 12.—COCK AND ATAKONA PIDENIYA.

FIG. 13.—THE KATANDIRALE DANCES ROUND THE ATAKONA PIDENIYA.

A DEVIL CEREMONY OF THE PEASANT SINHALESE.

FIG. 14.—THE KATANDIRALE FALLS BACK EXHAUSTED FROM THE ATTACKS OF RIRI YAKA.

FIG. 15.—THE KATANDIRALE REPEATS A CHARM TO PROTECT HIMSELF FROM RIRI YAKA.

FIG. 16.—THE KATANDIRALE LIES ON CROSSED MATS.

FIG. 17.—THE KATANDIRALE PRONE ON MAT, WITH THE PIDENIYA OF RIRI YAKINI UPON HIS BODY.

A DEVIL CEREMONY OF THE PEASANT SINHALESE.

"Maenik Bandara is a local demon of the North West Province, who is said to have been originally an Indian Prince; his emblem is a silver sword."

"The Kadawaras are a very puzzling group of demons. I never heard that there are so many as 67,000 of them. Some say that there is only one; others seven: others twelve; others sixty-seven. They are an importation from India, where the original demon is said to have been created by the wife of the god Siva. In Ceylon he (or they) is treated as a demon."

"I have not seen or heard of an *usputuwa* among the Sinhalese, and the expression *samema* is also not used by them, I think, though a somewhat similar frame is erected as an altar. The *pideniya* is commonly a simple portable rectangular frame of plantain stems, with a very slight decoration of red flowers (*ratmal*) and young coconut leaves."

"It is difficult to give an exact short descriptive definition of the Sinhalese idea of a *yaka*, as there are several classes of beings termed *yakas*. For instance, all the *bandaras* are ranked as *yakas*. There are also many other such and in addition there are numberless unnamed *yakas* who are quite local, and are scattered over the whole country; there are also spirits of deceased persons who become local *yakas*, though greatly inferior in rank to the *bandaras*, who themselves occupy a high position."

"All the *yakas* of whatever class are under the control of Wessamuni, their king."

"The *yakas* are all classed together as hurtful; but many of them also have protective functions, especially when provided with suitable offerings."

"The greater *deviyo* or *devas* are Indian gods, such as Vishnu, Skanda, Ganesa, and Ayiyanar. These are the *deviyo* of a colourless sort, the inhabitants of the Dev-lowa, the world of the Devas. These are chiefly human spirits, who are sent to this Elysium as a reward for meritorious acts. Sakraya (Indra) rules over them, but he is rarely mentioned by the villagers. Sometimes *deviyo* appear to people in dreams, but I do not remember hearing of an instance of their being seen during the day-time. The *deviyo* usually act as protectors of mankind. Broadly therefore it may be said that according to Sinhalese ideas the *yakas* are maleficent human or superhuman spirits, and the ordinary *deviyo* are beneficent superhuman or human spirits."

I am indebted to Mr. Hildburgh for drawing my attention to the references, in Gooneratne's paper "On Demonology and Witchcraft in Ceylon" (*Journal of the Ceylon Branch Roy. As. Soc.*, 1865–66), to some of the *yaku* mentioned in this paper, but the difference between the beliefs of the peasants of the Eastern Province and the low country Sinhalese, of whom Gooneratne wrote, is generally so great that I have not attempted to indicate even fairly obvious agreements.

ON SOME MEGALITHIC REMAINS IN THE NEIGHBOURHOOD OF AUTUN (SÂONE ET LOÎRE), FRANCE, WITH SOME OBSERVATIONS ON LINES OF STANDING STONES IN OTHER PLACES.

By A. L. Lewis.

While attending the third Congrès Préhistorique de France I inspected the remains of three tomb-chambers, on the way from Autun to the Camp of Chassey. The first is on a hill, about 1 kilometre south from the village of La Rochepot; the capstone, 10 to 11 feet long, 7 to 8 feet wide, and 1 to 2 feet thick, rests practically flat on the ground, one supporting stone, and possibly others, lying flat beneath it.

The second is on the same hill as the first. Its capstone has disappeared. The north-western end is formed by a stone about 10 feet long and 5 to 6 feet high; two stones, between 3 and 4 feet high, form the south-western side; and one stone, leaning very much inward, and about 9 feet long, constitutes the north-eastern side of a chamber 7 feet wide. Other stones lying flat at the south-eastern end may have closed it, or may be the last remains of a continuation of, or entrance to, it. These stones are surrounded by the remains of a cairn still 3 or 4 feet high in places, and there were indications that another small chamber or a cist might be found adjoining the one just described.

The third monument is on the north point of Mont Juliard, near Flagny, and 1 kilometre or so south-west from the one last described. Its axis is from five to ten degrees north of west to south of east. The west end is formed by one stone, 6 feet long and 3 feet high; the north side by two stones, 3 to 4 feet high, and 6 and 10 feet long respectively, the first and most westerly having a hole in it; the south side is composed of three stones, giving respectively about 3, 8, and 2 feet of wall surface lengthwise, and standing from 3 to 4 feet high. The ground inside is covered with fragments of stone, but whether these are the remains of the capstones, or of an end, or of a prolongation of the allée couverte, I cannot say.

The dolmen at Borgy mentioned on the programme of the Congress, was not visited for want of time, but it is not now, I think, in its original condition. There are said to be several similar remains round about, but some difficult to find, and all more or less destroyed. They, including those just described, have all been explored, and the results recorded in the proceedings of the local Societies, and some of the objects found are in the local museums, but I am not aware that they present any special features. These remains are all in the department of the Côte d'Or.

There are also many natural formations of rock which have been considered

by some to be artificial; this has caused M. Ernest Chantre to raise a protest against the "mania of certain archæologists for seeing a megalithic monument in every rock of a more or less picturesque aspect, and in every stone to which a legend is attached." (Congress of Montauban, 1902.)

The most important megalithic structure in all the country round Autun was —I regret to have to say "was"—at St. Pantaléon, 6 kilometres north of Autun, at a place called le Champ de la Justice, where also are the remains of a fortified camp, as some say, or as others say, of seven tumuli, connected at the base; some of these have been explored by M. Arnon and others, and have produced cinders, pottery, flints, and bones.

The monument in question is said to have been formed of three rows of menhirs or standing stones, extending over a space about 200 metres long, and 15 to 20 metres wide. I myself am inclined to think that the so-called length may have been the width of the ground covered, and that the lines extended considerably north and south of it. Of these menhirs, according to the excursion circular of the Congress, seven only are now standing, of which I saw five, namely, a group of three (Fig. 1), and two standing singly; they are buried in a thick hedge, which runs about north and south by compass.

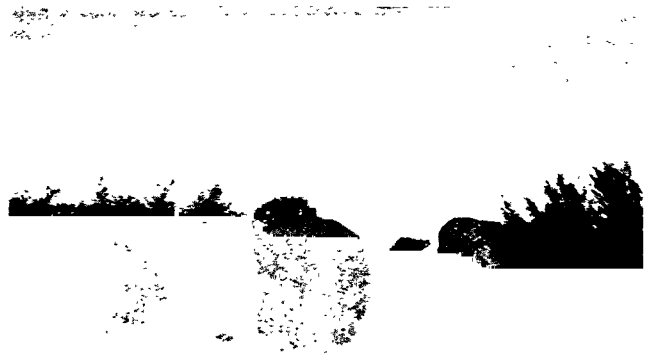


Photo by L. N. and L. C. Lewis

FIG. 1.—MENHIRS NEAR AUTUN.

This group of menhirs was made known for the first time by M. J. Rigollot, of Autun, in 1882: it then comprised thirty stones, which were thrown down and buried in the ground. M. Rigollot, thinking that they were on Communal property, obtained a grant of 300 francs from the General Council of the Department of the Sâone et Loire, dug the stones up, and set them upright; but an objectionable person who claimed to be the proprietor of the field, entered upon a number of legal proceedings in which I suppose he succeeded. Attempts were made to buy him out, but without success, as he would not sell less than the whole field, and that only at an exorbitant price; and finally he threw down and reburied the stones,

soon after which he happily died and was presumably buried himself. Negotiations for purchase might perhaps have been re-opened with his successors in title, but M. G. de Mortillet, having inspected the site in 1892, reported that, inasmuch as the stones had twice been thrown down and buried, there could be no certainty of their being a third time set up in their original places, and all ideas of purchase or restoration were thereupon abandoned.

At one time there were at least thirty-two stones on this site, and, as lately as 1884, M. Ernest Chantre speaks of thirty; he says they are of granite, and that no other granite is found within 8 kilometres, but that these are certainly menhirs brought that distance by the hands of men, and not erratic blocks transported by quaternary glaciers.

M. Chantre says the average height of the stones is 1½ metre, and their average cubic content 2 metres; the largest, which I measured roughly, is about 7½ feet above ground, and 5 feet broad and thick. As M. Chantre has said, "We are then in the presence of an alignment, like those of Carnac, round which, at Saint Pantaléon at least, the neolithic populations congregated; in all the neighbouring fields, for about two hectares round the menhirs, are collected in abundance polishers, polished axes in hard stones, and barbed arrows; and flint flakes chipped into knives and scrapers by thousands; the presence of this monument in the middle of an important neolithic station augments the interest which it excites itself."[1]

Since M. Chantre pronounced these remains to have been of the same class as those of Carnac, it may be worth while, in conclusion, to consider what similarity or relation, if any, lines of stones in various parts of the world bear one to another. Those at and around Carnac in Brittany consist of four principal groups; those of Erdeven, le Maenec, Kermario, and Kerlescant, the last three being near together, and extending over a mile and a half of country, and the first, two miles and a half away from the others, being nearly a mile in length. There are also some smaller lines, but it is impossible to go into details on the present occasion; the general plan of the four large groups appears to have been eleven or thirteen lines of upright stones forming avenues with large enclosures of stones at the west ends of those of Kerlescant and le Maenec. It has been suggested that the four great monuments were united by stones now destroyed into one structure eight miles or more long, winding about, and representing a serpent, the width of which varied from 200 to 300 feet; I am, however, inclined to think that the Erdeven lines certainly, and the others probably, were always separate monuments; but what was their object or purpose? Were they serpent temples, or solar temples or observatories, or merely sepulchral or other memorials? Why, also, were such immense numbers of stones used, where a comparatively small number would, so far as we can judge, have answered any probable purpose equally well?

[1] E. Chantre, "Les Menhirs du Champ de la Justice près Autun," in *Bull. de la Soc. de l'Anth. de Lyon*, vol. iv (1885), p. 194.

There is, perhaps, no conclusive evidence as to any of these points, so we pass from France to Palestine, to the Canaanite "high place" recently discovered at Gezer, and we find it consists of a single line of menhirs, originally ten in number, running from N. to S. (the tallest 10 feet high being at the south end), not very different from many in Gaul or Britain, but with the addition of a stone with a square hole, which is supposed to have been a socket for a wooden tree or image. The remains of children were found buried here, and it is thought to have been a place of sacrifice and worship of some kind.

Once more we change the scene—to India—where among the Khasi Hill tribes we find single lines of stones, 3, 5, 7, and sometimes even 9 or 11 in number, with a pair of altar-like dolmens in front of them. Nothing could apparently be more suitable for sacrifice or worship, but nothing in the way of appearance could be more misleading; for, as Colonel Godwin Austen tells us, in the first volume of our Journal, these stones are neither sacrificial nor sepulchral, but are erected in memory of some deceased member of the tribe, whose spirit is supposed to have conferred benefits upon it; the menhirs, always uneven in number, are however supposed to represent the male element, and the two dolmens, the female element; they do not face any particular point of the compass. If the spirit continued to benefit the tribe more stones might be added to its memorial, and it may be that the great numbers of lines and stones at Carnac were also added one to another to increase the glory of the dead, or of the living, or of both, and for no other purpose.

Very different from these are the rows of stones in the Deccan, figured and described by Colonel Forbes Leslie in his *Early Races of Scotland*, Vol. ii, p. 464, and Plate LX. These consisted of a line of three stones, about 4 feet high only standing in front of two rows, each of thirteen unshaped stones, those in each row being as close to one another as possible: the tallest were in the middle, those at the ends not being more than a foot or two in height. These lines faced to the east and had apparently been recently used, but the dolmen-like structures at the back were old and neglected, and did not seem to belong to them; the standing stones were whitewashed, and each had a large spot of red paint, with black in the middle, probably representing a spot of blood. Colonel Forbes Leslie believed that a cock had been sacrificed on the three stones lying in front of the line, which, unlike the others, were not fixed in the ground. Here we find rites and ceremonies taking place in front of the first line of stones, and, if these were extended as far back as those of Carnac, those observances would still take place in the same position. At Carnac the largest stones are at the west end of the lines, where also are the great enclosures; and, although the lesson of the Khasi monuments is that we must not be too confident in deducing a similarity of use from a likeness in form, we cannot help speculating on the probability that the west fronts of the Carnac lines were used in very much the same manner as these little Indian structures, though perhaps, with local variations, of which astronomical observation may have been one. Small circles of small stones observed in the Deccan by Colonel Forbes Leslie seemed to him to have been used in the same way as the lines of stones. Further

to the east the Angami of Assam set up stones as memorials of village feasts given by wealthy Naga.[1]

In our own country we have a variety of lines of stones, such as the "stone rows" of Dartmoor, very numerous there, but practically unknown elsewhere, and quite as mysterious as regards their use or object as those in France, though in a different way, for the stones composing them are most frequently quite small, and too close together to form an avenue; some are only single rows, some are double, and some have more than two lines; there are more than forty of them on Dartmoor, and they differ in orientation; it frequently happens that they have a circle at one end and a cairn at the other. The "rows" at Merivale are not quite typical examples, but look as though they might have had a more definite purpose than some of the others, and there are also appearances of proportionate measurement about them, which are not easy to detect in the other rows[2]; the stones composing them are small and close together.

We have again at Avebury grand double rows leading up to the great circle, but these were proper avenues of approach, and it is not necessary to assume any other purpose for them, though the direction in which they ran may have had a meaning or an object, astronomical or otherwise. At Stanton Drew too there were some short avenues, to which the same observations may apply.

The Sarsen Stones in Berkshire (which were the subject of my first archæological paper, written forty years ago this year),[3] though believed to be the remains of a natural deposit, seem to have been arranged or re-arranged artificially, and look like a miniature Carnac, but they do not resemble the Dartmoor "rows" any more than the latter resemble those of Brittany.

At Shap in Westmorland there was a double line or avenue of large stones, now almost destroyed; it went northward for a mile or more from a circle, part of which still remains by the side of the railway, to make which the other part was unnecessarily destroyed. A line of fallen stones is said to extend for 112 yards N.N.E. from a triple concentric circle of small stones at Crosby Ravensworth, Westmorland. There are also lines of small numbers of menhirs at Boroughbridge in Yorkshire, in the island of Arran, and up the west coast of Scotland, which though now consisting of but very few stones, may originally have comprised more; and finally there are the lines attached to the circle at Callernish in the Island of Lewis, one line each to the east, south, and west, and two to the north, forming a kind of cross, whereof the highest stone, in the middle of the circle, is the central point. Of these the southern line is said to direct the eye over the central stone to the pole star, and Sir Norman Lockyer finds that the northern lines indicate the point where Capella rose in 1720 B.C.[4] In Caithness there are groups of

[1] *Census of India*, 1901, vol. i, Ethnog. Appendices, p. 210.
[2] "Ancient Measures in Prehistoric Monuments," *Journ. Anthrop. Inst.*, vol. xxvii, p. 200.
[3] *Congress of Prehistoric Archæology*, Norwich, 1868, Proceedings, p. 37.
[4] *Nature*, Jan. 16, 1908.

stone rows radiating from cairns, and in County Clare, Ireland, there is a line of nine menhirs N.N.E. to S.S.W.

All the cases I have mentioned are as a general rule classed together as alignments, similar in kind and in purpose, but on examination we see that they present great varieties of both, and striking local differences.

With regard to dolmens; most of them were sepulchral, and, except in the matter of size, a greater uniformity prevails amongst them, because, in almost every part of the world, when a dead body has had to be disposed of, a stone box, large or small, has been found to be a convenient receptacle for it. But even amongst dolmens there are local varieties; some in Ulster differ from those in other parts of Ireland, and those of Holland are not like the Irish, British, or French monuments. There are also both in India and in Britain, and perhaps elsewhere, dolmens that were not tombs, but open shrines, never covered nor intended to be covered.

Circles of one kind and another are also found nearly all over the world, and nothing in fact would be more natural, when a cist or dolmen had been covered by a mound, than to surround that mound with a ring of stones, either as an ornamental boundary or as a more useful retaining wall, and such circles are almost as common and universal as tumuli themselves; but many of the circles we find in Britain are not of this description, nor for sepulchral purposes, and there are considerable local differences. There are round Inverness, and round Aberdeen, numerous circles, which, though primarily sepulchral, differ widely from all others; and what is still more surprising, those round Aberdeen differ entirely from those round Inverness, and there are indications of a third type situated between the two and differing from both.

I think that I may fairly claim to have been the first to bring out clearly these marked and most important differences between the circles round Inverness on the one hand, and round Aberdeen on the other, and those of the rest of the world: for, although other observers have noticed those differences it has been in a rather casual way, and without appreciating the full significance of them. Dr. Anderson, for instance,[1] regarding all the circles as nothing but burial places, has devoted his attention rather to attempting to date or classify the various forms of tombs by their contents, and in doing so quite missed the point of greatest importance, the existence, namely, of so many circles of two such special types, each in such narrow limits. Dr. Anderson's opinion is that the neolithic people buried their dead in chambered cairns, as in Caithness and elsewhere; that the early bronze folk put a circle round their cairns, as in the Inverness district; that the later bronze people made the circle the principal feature, and, instead of putting it round a large cairn and chamber, put only a small cist and mound in the middle of it, as in the Aberdeen district; and that finally there was no indication of burial at all, but only a circle of stones, as at Brogar and Stenness. This would

[1] Rhind Lectures, 1882, reprinted as "Scotland in Pagan times (Bronze and Stone Ages)," 1886.

be a very plausible theory, if only the circles of different types were mixed together all over the country, but they are not; those with "recumbent" stones, of which there have been sixty or more, are found nowhere in the world except in the country round Aberdeen; and those with the great chambered cairns in the middle are not to be found very far from Inverness, though there are many of them in the districts round that city. If therefore we were to adopt Dr. Anderson's view we should have to suppose that a neolithic tribe began burying in chambered cairns in the north or west of Scotland; that in the beginning of the bronze age it became confined to the district round Inverness, and thereupon began building cairns of a somewhat different kind with circles of large stones round them; that later in the bronze period it migrated or was driven out of the country round Inverness into that round Aberdeen, and forthwith changed its style of burial place to a circle with a recumbent stone and small cist; all which seems very unlikely. The more reasonable view appears to me to be that the circles round Aberdeen and Inverness respectively were practically contemporary with each other, and with those of the more ordinary type in other parts of the country, and that the differences, marked as they are, were a purely and strictly local matter.

On looking at the geographical position it would only be natural to suppose that the type peculiar to the Aberdeen district had been imported from Scandinavia, but Professor Montelius, whom I had the pleasure of meeting at Autun, informed me that it was quite unknown there; he also told me that the statement that there was, somewhere in Sweden, a circle resembling Stonehenge was entirely incorrect, that there were indeed somewhere two stones which might have supported a third, but that there was no evidence that they had ever done so. The usual course has long been to group all circles and all trilithic structures (even the remains of Roman oil presses) under one common heading, "just like Stonehenge"; but Stonehenge, by reason of its transverse stones and carefully constructed tenons and sockets to keep them in place, is absolutely unique, no mere local type but a species complete by itself; occasionally we hear of something exactly like it in some out-of-the-way place, but when we get full details we find it very different; the celebrated Tongan trilithon is a good instance of this.

The general tendency of writers on this subject has been to dwell on vague general resemblances and to ignore important differences, possibly because they had never studied them, and it has been suggested that all the rude stone monuments, from India to Orkney and Scandinavia, were the work of one race, or perhaps of a race of circle builders coming from one source, and a race of dolmen builders coming from another. Long as the way is between those points there are yet many rude stone monuments outside it, in the Pacific islands, in northern Asia, in Japan, in America, in West Africa, and it is even said in Australia, and this fact and the differences of form and purpose, which I have been pointing out, seem to go far to support the view, that as a whole, rude stone monuments are not so much the product of any one race as of a phase of culture which many races have passed

through. I say "as a whole" because there are occasionally such resemblances of form and such community of custom and tradition, even in connection with the monuments themselves, as do strongly suggest some affinity between the builders in those particular instances, just as community of language indicates contact of some kind, but not of necessity anything more.

SOME ASPECTS OF SPIRIT WORSHIP AMONGST THE MILANO OF SARAWAK.

By A. E. Lawrence, Assistant Resident of Mukah, Sarawak, and John Hewitt, B.A., Curator of Sarawak Museum.

[With Plate XXXIV.]

General Remarks on Milano.

The Milano of Sarawak are a tribe of people now occupying the coastal regions of North-West Borneo, from the Rejang delta on the south-west up to the Baram mouth on the north-east. On the whole they are a fairly pure race, very distinct from the neighbouring Sea Dayaks or Malays, though the northern Milano have to a certain extent mixed with other tribes. Their language is very widely different from Malay, but has many words in common with the various languages of the more aboriginal races of the archipelago. Unlike other natives of Borneo, they have a settled industry—the working of sago, which, excluding the sea fishing common to all natives living on the coast, constitutes their only occupation.

It is not certain how long these Milano have occupied the coastal regions: there are traditions stating that they came from the interior, but this gives us no sure indication of the date when they left it: however, it seems probable that this must have been several centuries ago, and, indeed, their tradition places the date of their establishment on the coast before the time of the conversion of Brunei to Islam, which occurred centuries ago. For a long time they have had relations with Brunei as their governing power. From Brunei was introduced a certain civilization—*e.g.*, in clothing—but this does not appear to have appreciably modified their notions of religion and morality, excepting within recent times, when the Islamism of Brunei has succeeded in grafting itself on to the old religion, which it is very slowly supplanting.

Notions of Spirits and Ghosts.

Very characteristic of the Milano is their intense belief in a world of spirits, which makes them refer all the events of their lives to the agency of these spirits. For all the ills of mankind malevolent spirits are directly responsible, though, on the other hand, they do not usually consider good fortune to be the gift of the gods, as if the good things of life were man's normal lot. These numerous spirits are quite distinct from the souls of the departed, which latter, however, now roam

harmlessly in the neighbourhood of their former homes. In accordance with his religious theory, the Milano's methods of retrieving his fallen fortunes or of healing the sick is directed towards the appeasing of the offending spirit. In treating the sickness, therefore, there is no need whatever to administer medicines, the treatment simply being the pacification of the spirit by offerings and by injunctions offered through the medium of pith images, shortly to be described. It will be seen, in fact, that their method of healing is but a form of the world-wide faith cure and that to the great healer, Dame Nature, the Milano patient owes his recovery after the ministrations of the witch doctor. We ought to mention, however, that simple plant remedies are used to some extent by those people who have come under the influence of Islam, and the use of these is gradually spreading.

The whole system of communication between men and spirits (not including the souls of the dead) for the purpose of recovery from sickness, prayer for long life, riches, children, or other good things, or for bringing misfortunes upon an enemy, is known as "Bayoh": the person who acts as medicine man or witch doctor is the "orang bayoh."

The Bayoh Man.

He is supposed to be constantly in friendly intercourse with the spirits, and not unusually abuses his privilege by threatening to bring about illness or death unless some unfortunate layman hands over money or coveted goods. The Bayoh man—sometimes women hold this office—does not neglect to impose on the credulity of his people by methods not strictly spiritual. Frequently he is a conjurer, and, whilst addressing some spirit for money or tobacco, will suddenly produce it from his person, or from some unexpected place in the room.

Communication with the Spirits.

As just mentioned, communication between men and spirits is effected by means of images cut in sago pith, known to Mukah Milano as "Dakans," and to the Oya people as "Belum": these images are supposed to be material likenesses of the spirits they represent. When a person falls sick, the mode of procedure is as follows: a medicine man (orang bayoh) is called in to diagnose, and he decides which spirit (antu) must be considered to be responsible. Then he returns home, procures a log of sago palm, and the next day appears at the patient's house with a dakan representing the antu. Then, sitting down by the patient, he begins to beat a drum, not loudly, but in a peculiar way that cannot be mistaken, reciting a monotonous chant in a semi-obsolete language the while: thus calling on the spirit to enter his image and beseeching him to stop the sickness, he now spits on with sireh, which marks the end of his incantation, and then he pours water over the dakan, letting it trickle from the image over the affected part of the patient. During this time, the patient himself does nothing whatever, but just awaits the result of the witch doctor's efforts to cast out devils. After this, the

image is taken to the jungle or hung up on a tree in the air, or placed in the river according as the spirit's real home is jungle, air, or water. Such a ceremony is known as "Bayoh Sukat." In case the patient does not improve in health, another Bayoh man may be called in, who goes through quite the same ceremony, using a different spirit, which, however, would probably be allied to the former one. But if the patient becomes seriously ill, a more important ceremony, known as the Berayun, is resorted to. Sometimes this Bayoh ceremony is used when any thing special is being asked of the spirits, as for instance a child by a woman. The "Bayoh Sukat" is carried on in private, but the Berayun (Payun as the Milano call it) is as public as it can possibly be made.

The Berayun Ceremony.

The Berayun is the most important of all Bayoh ceremonies, and it is only performed in extreme cases: such persons as are really seriously ill or those ardently desiring some great benefit would alone turn to this, their last hope. In the Berayun ceremony the spirits approached are few, in fact only the most powerful of the numerous deities of our list. We have never yet come across a Berayun ceremony held for the purpose of obtaining a benefit, but have been assured by Bayoh people that they sometimes do occur, although very rarely.

For a description of the Berayun ceremony we are quoting Mr. W. M. Crocker (*Sarawak Gazette*, Nos. 120 and 121).

"Should the sickness still continue, then the last means is resorted to—that is the 'Brayune.' A sorcerer is again called in; he or she is supposed to have power of invoking the good spirit against the bad, and of, in fact, exorcising all kinds of sickness. Should they fail, there is no help for the patient. This sometimes lasts for seven or eight days, during which time their neighbours' sons and daughters all meet, dressed in their fine clothes, and feasting goes on as well as a great deal of flirtation. I visited one of these ceremonies some time ago, out of curiosity. On entering the house, I found crowds of people assembled, a seat of honour being placed for me in the middle of the room near the centre of operations. This same seat was an absurd representation of a Chinese dragon with a seat on his back, having also horns, and scales painted all the colours of the rainbow; he was represented as standing on the back of a skate, the whole being a masterpiece of carving. It was afterwards given to me." (This is nothing more nor less than a large carving of the dakan, "Naga Terbang Bau Pari," described further on.)

"The room itself was decorated with parti-coloured cloths, a swing composed of rattans hung across the room to which were attached several small bells, and flowers of the beautiful areca palm. In the background a large band of players on drums and tomtoms kept up the life of the entertainment. The wizard got upon the swing, which he commenced vibrating slowly, keeping time to the music. Presently he commenced swaying his body in every possible posture, increasing the time and tinkling the bells. Around his person floated two loose silk scarfs, his head being decorated with a gold crown and a gaudy red silk handkerchief.

The music increased in noise and time until he fell from the swing, apparently insensible, but still struggling with the evil spirit over which he was trying to gain the mastery.

"A woman afterwards got up. She commenced singing in a low, monotonous half wail, very wild, weird, and musical. She was entreating the evil spirits to be merciful. She then commenced an imitation of paddling, and was supposed to travel into the next world and converse with the spirits. By and by her appeals became more violent: she got on the swing and worked herself into such a frenzy that she had to be removed by force. Meanwhile, the sick person was lying in a corner of the room, being disturbed continually by the operators, who waved the flower of the areca palm over him in a wild and witch-like manner."

At a Berayun which one of us had the opportunity of attending, an old lady was being treated for severe dysentery. The dakan employed was Belalangan sian pepugong, which is supposed to be very powerful. It was enclosed in an elaborately carved model house 4 or 5 feet square. The room was decorated with coloured cloths, the flowers of the areca palm and leaves split and plaited into fantastic shapes, mostly representations of birds. The swing was, as is always the case, a single long rattan of the kind called sĕga (*Calamus optimus*), from the end of which a ladder made of plaited leaves has to be brought down into connection with the receptacle (model house or boat) of the dakan. This rattan serves as a sort of bridge, by means of which the spirit, after being called from his dwelling place, approaches the dakan.

One Bayoh, a man in this case, was conducting the ceremony, but he was not the only person who got upon the swing. It is the usual custom that anyone who knows how, and feels so disposed, can mount the swing and go through the performance.

Before the swinging commenced, the chief Bayoh man took yellow-dyed rice, and scattered it three times towards each of the four walls of the room (*i.e.*, three times towards each end of the rattan swing, and three times each way across it), chanting an incantation the while and waving an areca flower. Whenever, during the evening, the swing did not happen to be occupied, an areca flower was at once hung across the middle of it.

The procedure of those who mounted the swing was much the same as in the preceding account, except that every one of them, besides swaying the body, at the same time recited almost in a monotone an incantation in the old language, addressed to the spirit, begging him to come down and take the sickness out of the patient's body. After recovering from the stupor or frenzy, each performer would go over and see the patient, muttering incantations over her, sprinkling yellow rice and waving an areca flower.

The finish of the whole thing was that on the last night the patient herself was supported and swung on the rattan, and finally, after the conductor of ceremonies had also had a swing and recovered from his resulting trance, the desired spirit was pronounced to be present in the dakan receptacle, having come

along the rattan and down the ladder of leaves; then both patient and doctor got inside it.

While there, the Bayoh man spat sireh on to the image (dakan) and poured water over it, sprinkling the drops over his patient's body and muttering his incantations to the spirit meanwhile. No swinging took place after that. Early next morning the dakan in its receptacle was taken from the patient's house with full musical honours, and tied up in a side stream not far away, where it was left to rot. With the dakan were placed several areca flowers, padi prepared in a certain way, and yellow rice. As the dakan leaves the house, so does the troubling spirit leave his victim's body in peace.

Sickness Boats and Houses.

In the Berayun ceremony it is customary to provide the dakans used with special receptacles, often in the form of a house, but in the case of Iang spirits it is a model boat of sago pith manned with a pith crew and armed with cannon made of the same material. The boat is decorated with flags; inside is a leaf tray containing food.

The whole, with the contained dakan, is floated down the river. If the spirit be a Gun spirit, the dakan in its house is consigned to the jungle. In case of epidemic sickness, sometimes a whole village will club together to make a very large and elaborate sickness boat. Such a one was made at Oya a few years ago: it must have been at least 25 feet long, and as it was towed slowly down to sea along with its crew of images, the whole population of the village escorted it along with full musical honours.

Familiar Spirits.

Each Bayoh man has a familiar spirit, whom he invokes in all his incantations and by whom he effects communication with the spirits represented by the various dakans. As a rule the different Bayoh men have different familiar spirits, who vary in importance and potency, and, accordingly, Bayoh men vary in power. For minor cases a Bayoh man whose familiar spirit is not particularly powerful will suffice, but for a serious case the most powerful spirit is considered necessary, and the owner of this spirit used to demand a correspondingly high fee; indeed, before the time of the English Rajahs in Sarawak, the Bayoh men extorted very excessive fees in brass guns, gold, etc., from their patients.[1]

Enchanted Dakans.

Prior to the incantation ceremony the dakan is not an object of fear to the natives, but after the incantation so much are they feared that an ordinary Milano would never afterwards even touch them, fearing, in fact, that the sickness for which the dakan was made would be inflicted on the individual who interfered with it;

[1] *Cf.* Ling Roth, *Natives of Sarawak*, vol. i, p. 285, note 27.

they apparently imagine that the spirit which brought about the sickness now resides in the dakan. The Bayoh people, on the other hand, have no such scruple, and handle the images with impunity.

The Spirits and Morality.

This world of spirits by which the Milano are surrounded appears to dispense its favours or ills quite irrespective of the morality of the unfortunate object of their attentions. The spirits are always amusing themselves by annoying some mortal, and his ill luck is not attributed to any "sin" of which he may be suspected, nor indeed do the Milano consider that "wicked" actions are ever punished in this world or the next.

All the dakan spirits are malevolent, but one or two can also confer benefits. For example, a woman wanting a child, or a man desiring wealth, might undergo a Berayun ceremony, asking their desires of a benevolent spirit. But it is noteworthy that the spirit in conferring favours on a particular person does it at the expense of some other person; if riches are granted, it means that some other person at the same time becomes poor. The most powerful spirit of all, especially for good, is To iang.

The Three Classes of Spirits.

The spirits which thus trouble mankind are numerous, at the present day being eighty or more; they fall into three classes, according to the places of abode of these spirits, viz., the water spirits of the Iang class, the air spirits of the Langit class, and the jungle spirits of the Gun class. It is impossible to state in some cases by what methods of reasoning the particular *antu* hereafter described were associated with a particular disease, but in many cases a fairly reasonable connection is apparent. For instance, the Iang spirits of the water are always held responsible for dysentery, and that is just what might be expected from the fact that when out fishing the Milano invariably eat raw fish and other uncooked food. Cramp, too, is often attributed to a sea spirit.

The Langit spirits again are the cause of headache, sunstroke and fever, such as one may easily acquire by exposure to a tropical sun. The Gun spirits are held responsible for swellings of the lower limbs and for ague, diseases often attendant on life in the swamp jungle.

A very usual line of argument, well exemplified in dakans Data gun and Pulum, is as follows: One man hits another in the eye and the sufferer is thus blinded; if, therefore, a person "spontaneously" becomes blind, it follows that a spirit has hit him in the eye.

As may be seen, then, by careful examination of our dakan list, in the majority of cases where the real facts concerning the image and its use are clear, there is a sound logical connection between the sickness and dakan used; in our opinion the study of this phase of their spirit worship is a most interesting chapter in the deductive science of a primitive people.

In the following account of dakans we condense the facts relating to the ceremony, as it is almost invariably the same as already described.

Dakans vary much in size: an average dakan from Mukah has a length of 8 or 9 inches, but some are smaller and others much bigger. The same kind of dakan varies in its proportions according to the maker.

Particular Account of Dakans. Iang Class.

Naga Sebalun.—A wingless, four-footed dragon, with the tail coming over his back. Used for bilious attacks or poisoning. After the incantation ceremony it is deposited on the river bank.

Naga Singa.—A dragon's head on the legs and feet of a man. *Singa* in Malay means "a lion," but they have no acquaintance whatever with this animal. Used for heartburn. This is a river spirit, but the dakan is not taken out of the house.

Naga Permalei. (Known at Oya as *N. penganan.*)—A dragon's head on the body of a snake. They believe that when a certain poisonous water snake becomes old it turns into this spirit, and now disappears from human gaze to live only at the bottom of the river. This dakan is used for a heart affection. Their mode of reasoning appears to be that just as when a poisonous snake bites a person the result is a heart failure, so probably a heart disease to which no material cause can be assigned is due to the action of a snake spirit. This dakan after use is attached by a string to a pole standing on the river bank, the dakan itself resting on the water.

Naga Timun.—A dragon's head on a body like a cucumber. This dragon is the spirit which, flopping about in the rivers, causes a turmoil in the water, thus undermining the banks and bringing down the trees growing thereon. This spirit is harmful to mankind in causing the infantile sickness which we associate with an

NAGA TIMUN.

overloaded stomach. They evidently connect the internal motions of the stomach with the violent commotion of water. After the incantation, this dakan is put on the river and allowed to drift: if it were tied up near the house, as in the previous case, the bank would collapse.

Naga Bĕrkalih.—Two dragons, each with a snake's body, the tail of the one joined to the head of the other. This spirit has his dwelling place in all whirlpools, both in rivers and seas. He causes people to retch violently without being able to vomit. After the ceremony, this dakan is floated away in the water. The next dakan is scarcely distinguishable from this.

Naga iang angan.—Two dragons, each with a snake's body terminating in a

pair of legs. This spirit lives in the foam of rivers and is specially in evidence during floods. It causes bad stomach ache with internal noises "as if from a living creature within."

After using, the dakan is floated away in a patch of foam.

Naga Bĕrtampa.—This is a Naga *permalei* holding captive under its head a *belalangan iang* (*q.v.*). The latter is the familiar spirit of the Naga. The Bayoh man's incantation is directed towards the removal of the *belalangan iang.* It is used for dysentery. After the incantation it is tied up to a pole in the river.

NAGA BĔRTAMPA.

Belalangan Iang.—A person with arms over his chest, the body legless, but ending in a swimming tail. This spirit swims about in the water. He causes dysentery. After use it is tied up to a pole in the river.

We have another dakan of this name very like the one just described, but differing in that this second dakan is eating his tail. This river spirit causes dysentery: the bleeding of the bitten tail they associate with the loss of blood caused by the disease.

Belalayang Iang.—A person with a long bent swimming tail, bifid at the end. This spirit is the cause of lunacy. The image is tied up in the river near the house ladder.

Belalangan Sian Pĕpugong.—This dakan is a composite structure, in shape like a circular tower, the walls of which are made up of water spirits separated from each other by upright columns, representing the walls of their dwellings. The spirits here are supposed to be working together. The names of the individual spirits are:—*naga iang, belalangan liso, belalayang iang, sĕpărangin iang, gelap iang, dalong iang, jakau iang, gin iang, belalangan sian iang.*

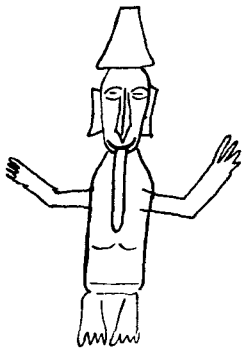
Around the top and bottom of the dakan are twisted the figures of snakes, and these snakes are the guardians of the spirits' dwelling place. This dakan is often used for dysentery. After the ceremony it is tied up in the river near to the patient's house.

Bu-Au-Iang.—We have no less than three dakans of this name:

(*a*) *Sea-spirit.*—A person with one hand up to his ear and the other on his back. This spirit causes fever, with sharp pains in the chest and deafness—note the position of the hands. It is floated out to sea.

(*b*) *Sea-spirit.*—A person wearing a sun hat, his neck encircled by a spiky collar. The spirit is the cause of relaxed throats. The dakan is tied up in the water at the mouth of a river.

(*c*) *River-spirit.*—A person with curious turreted head and with one hand on the chest and one on the abdomen. This is the cause of a tingling sensation all over the surface of the body. The image is consigned to the river, its feet being weighted so that it floats upright.



BU-AU-PENGAMAU-IANG.

Bu-Au-Pengamau-Iang.—A person with arms wide spread out and with a very long tongue hanging down on the chest. The spirit lives in shallow waters near the banks. It attacks children, giving them fits, when they assume more or less the appearance of the dakan. Finally it is placed close to the edge of the river in shallow water, its legs buried in the mud.

Bu-Au-Bĕrdinding.—A person with shades above and at the two sides of his face, the arms folded up over the abdomen. This water spirit causes unusual labour to a woman in confinement. The dakan is tied up in the river below the place where the family tread out their raw sago.

To Iang.—This is a composite spirit and as such is the most powerful of all the water spirits: it can give orders to the other spirits. The dakan in shape is a circular tower, the various spirits being arranged in an upright position all round. Between adjacent spirits are living posts, which also have names. At the top, bottom and middle of the tower it is encircled by snakes. The names of the individual spirits are:—*Gĕlap iang, Dalong iang, Jakau iang, Lĕliso iang, Sĕlayong iang, Gin iang, Pulum iang, Sĕmara iang, BuAu-Lĕliso bulu, Bĕlălangan sian iang, Sĕbah iang, Tujah iang.*

The names of the posts between these spirits are: *Siat, Babang, Bĕnĕnawa, Kĕlĕnatio, Bĕlipan, Tiek, Tatin, Bĕlĕbai, Tado, Belebang, Belelayang, Selepanai, and Bĕlulei or Bĕbuyun.*

The words just mentioned—we give the meanings later on—are almost all the names of insects, and it is no unusual thing for a clever Bayoh man to make use of such insects and by sleight of hand to draw them out of a sick person's body. This spirit causes dropsy. Also, however, it has great power for good, and people are wont to intercede with it when in pursuit of wealth or of children.

After the incantation ceremony this dakan is tied to a stake fixed in the river bank.

GĔLAP BĔRANTEI.

To Dat.—This is a married couple who are never seen separately. They each have turreted heads and the hands are ventrally applied. The wife wears ear ornaments. They cause dysentery. Their home is far out at sea where the *barongs* (sea boats) fish. After using, they are taken out to sea and allowed to drift.

Gĕlap Iang.—A person with both hands to his ears and with a turreted head. This river spirit causes sharp pains in the liver region. The dakan is deposited amidst the reeds at the side of the river.

Gĕlap Bĕrantei.—A person wearing a sun hat, with chains around his chest and with one hand up to the ear, the other on his chest. This dakan is not used alone, but only in conjunction with Jin Bĕrantei, whose slave he is.

Jin Bĕrantei.—A person riding on a ray fish; he has a chain round his body, has a hole in his hat to hold a torch, and he holds his beard in both hands. They say this is the spirit of the *ikan* (fish) Remahan. Fishermen often see this *antu* at night in the shape of an incandescent light—the torch—on the water. When they have this experience they always run away. The effect on a person victimised by the spirit is severe pains in the left side, followed by fainting. This dakan is floated off to the sea after use.

Jin Iang.—A person wearing a sun hat, hands up together on the chest, with a scaly body as usual with Iangs. This sea spirit has exactly the same effect on man as *Jin Bĕrantei.* This image is floated off to sea.

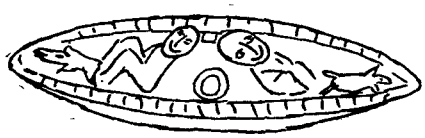
BĔRANTEI IANG.

Bĕrantei Iang.—A person with a snake twined round his neck, its head grasped in his two hands below. This river spirit causes a feeling of fulness in the chest and nausea. This image is tied up in the river below the house ladder. Note the connection of thought between the entwining snake and the feeling of fulness in the chest.

Dengong Iang.—A person with head turned round to one side, one hand being on his chest, and the other on his stomach. This sea spirit causes the tendons of the legs to retract, making it impossible to walk.

Dalong Iang.—We have two dakans under this name:—

(*a*) A boat containing two *antu* and two dogs. When this spirit company meets a person, if the dogs bark the *antu* will throw spears at the person, and the result of this is that the unfortunate sufferer has sharp pains in the intestines, accompanied by dysentery. In making this particular dakan, our Bayoh man did not make the spears of the *antu* lest they should be misused. The dakan is floated down the river at evening.



DALONG IANG.

(*b*) A man with hands crossed over his chest, wearing a *chawat* (a loin cloth as now worn by Sea Dayaks and formerly by Milano). It causes dropsy, perhaps that of beri-beri. The dakan is floated down the river at evening.

Dohig Iang.—We have two of this also:—

(*a*) A man with a head cloth, with both hands on his chest. This spirit causes dropsy. It is floated down the river at night, and as it goes past the houses its influence makes the people sleep.

(*b*) A female spirit. She is bareheaded and has one hand on the chest, the other on the abdomen. She causes a painful swelling of the knee joints. It is floated down the river after use.

Potianak Laut.—Two people stuck together at the side like Siamese twins. They always work together. This spirit is the cause of hard labour in women during childbirth. The dakan is eventually floated out to sea. The name *Pontianak* (Malay), as an evil spirit associated with childbirth, is one of wide distribution, stretching up through the Malay Peninsula into Siam and India.

Jakau Iang Angan.—A person sitting down, with wings like scales all over his back. This river spirit causes dropsy. It is tied to the house ladder and allowed to float on the surface of the river.

Tujah Iang.—A man with a high scaly head-gear, with one hand on his chest and the other on his stomach. This river spirit causes sharp pains in the small of the back (lumbago). It is floated off in the middle of the river.

Kerawi Iang.—A four-footed person with curved head-gear and with a tail which curves up and is held up to the throat. This is a river spirit which causes severe coughs. It seems to be their belief that coughs are caused by a spirit pressing on the throat of some unfortunate human being. The dakan is floated in the river tied to the house ladder.

Sebah Iang.—We have two kinds of this name:—

(*a*) A person wearing a sun hat, with both hands over his forehead. It causes headaches: note the position of the hands. It is finally deposited on the seashore.

(*b*) A person with one hand on the throat and the other across the abdomen. This river spirit causes shivering and a violent contraction of the throat, so that the sufferer can scarcely speak. The dakan is finally consigned to the river.

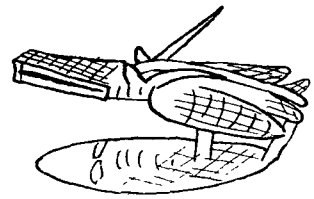
Gelamat Iang.—Of the two spirits under this name one is male and the other female. They are always used in conjunction. The male has a three-peaked head-dress, is winged on the back, and has his hands crossed over the chest. The female is very scaly all over and is winged behind. She has a conical head-gear, and her hands are together on the abdomen. This spirit couple lives in the rivers and causes dysentery.

Spirits of the Air. (*Langit Class.*)

Naga Terbang.—A dragon, whose tail curls up and goes into the back of the head. This dragon spirit makes one hot and bilious. After the ceremony it is stuck out at the end of a long pole, so as to be freely exposed to the air.

Naga Terbang Langit.—A winged dragon with two legs and a fan-shaped tail. This is for biliousness and heartburn. Used exactly in the same way as *Naga Terbang.*

Naga Terbang Bau Pari.—A *Naga Terbang* standing on a ray fish. This makes one hot and feverish, with a feeling of fulness in the chest. The dakan is hung up on a tree near the house.



NAGA TERBANG BAU PARI.

Naga Semalaiang Langit.—A dragon with two pairs of wings, one above, the other below. The upper wings are supposed to cause a feeling of fulness in the chest and throat, and the lower wings cold in the stomach region. This image is stuck up on the end of a pole.

Jin Separangin.—A person wearing a large head-dress with angel-like wings and with his hands up over his eyes. It causes fever and delirium. This dakan is placed in a specially constructed receptacle in a tree near the patient's house.

Jin Separangin Langit.—A winged person wearing a sun hat, one hand to his head and the other on his chest. This spirit causes sharp pains in the back. It is stuck out on a pole near the house.

BU-AU-SEPARANGIN LANGIT.

Bu-Au-Separangin Langit.—A winged person whose hands are held up to his eyes. He causes headache and eye diseases. It is put out at the end of a long pole.

Sĕpărangin Langit.—A winged person with his hands up to his head. Used for headache with fever. It is tied up in a tree near the house.

Bu-Au-Langit.—A winged person with hands over his chest. This air spirit causes fever. The image is hung by the neck to a branch of a tree near the house.

Bu-Au-Langit-Rabong Pengamau.—This is a boat which at one end terminates in a helmeted head. Inside the boat is an *antu* lying down. The boat itself is provided with a pair of wings. The *antu* (*bu-au-pengamau*) in the boat really belongs to the jungle, but is caught up by the *antu* of the boat and is carried about in the air. The two do their deeds of ill together, the *bu-au-pengamau*, however, being the more vicious. They are responsible for many fevers and delirium. The dakan is stuck on a pole high up in the air.

BU-AU-LANGIT-RABONG PENGAMAU.

Bu-Au-Ulo.—A stout person with both hands up to his head and with a truncated legless body. Used for very severe headache (*Ulo*, head). It is hung upside down in a tree near the house.

Bu-Au-Metiring.—A winged person with hands up at the sides of his head. This air spirit causes fever. The image is hung up on the branch of a tree.

Bu-Au-Lĕliso Langit.—A large winged person who below the waist ends in three spikes; one hand is on his chest and the other on his stomach. This spirit is the Rajah of all the spirits of the air, who all obey him; he has no power of

good to men. He causes fever and delirium. This spirit is tied to the branch of a tree near the house.

Rabong Langit.—This is a boat containing two spirits. The boat has at its sides a pair of wings, and it ends in a dragon's head. The contained spirits are *Sebulan* Langit and *Gelap Langit,* both of which bring about delirious fever. The dakan is put out at the end of a long pole near the house.

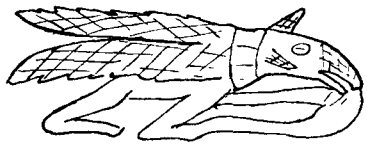
Gelap Separangin.—A person with one hand across his chest and the other on the head. This spirit causes fever, with a soreness all over the body. It is fastened to a branch of a tree near the house.

Kĕrawi Langit.—A winged, four-footed creature represented hiding the face with its tail. Another specimen of this dakan is a winged person with tail only reaching as far as the chest. He wears a crown of horns. It is used for chronic cough, caused by pressure of the *antu's* tail on the chest. It is placed in a little receptacle high up in the air, near the house.

Siau Langit.—This is a fowl. The fowl spirit causes asthma. They probably see a connection between the noise of fowls and that of asthmatic persons. The dakan is put on the end of a long pole above the house. (*Siau,* fowl.)

Maiau.—A male and female hornbill. This spirit of the hornbill causes bad coughs in children. The cry of a hornbill reminds one much of a harsh cough! The dakans are each placed on a split stick above the roof of the house. (*Maiau,* a certain kind of hornbill.)

Potianak Burong.—A winged animal with large curved beak and two pairs of legs, the anterior pair coming up towards the beak, and protruding outstretched hands as if lapping up a liquid. This spirit drinks the blood of childbirth. He may or may not cause special sickness to the woman. The dakan is hung below the house of a woman in confinement. There is no sprinkling of water in this case.[1]



POTIANAK BURONG.

Tujah Langit.—A winged person with one hand up to the head and the other across the abdomen. He causes fever, great weakness and perspiration. The image is hung in a tree near the house.

Babang Langit.—Babang is a large stag-beetle which attacks the coconut palm. The dakan is a crude representation of such a winged animal; his tail ends in a fan and the head has an armament resembling that of the beetle. The spirit of this beetle causes ear-ache. The image is impaled on a sharpened twig of a tree near the house.

Bua Dian.—A hollow ellipsoid containing two figures of spirits, *Daliso langit.* The surface of the image is much spiked. The spirits inside are brother and sister. This causes very bad headache when the head feels as if splitting. Perhaps the forcible splitting of the durian fruit when ripe suggested this dakan. It is finally hung up on a growing tree near the house.

[1] *Cf.* note on "Pontianak laut" and on "Penanggalan" in Skeat's *Malay Magic,* p. 327.

Jungle Spirits. (*Gun Class.*)

Bu-Au-Pĕngamau.—There are two kinds of this:—

(*a*) A person wearing a sun hat, his hands over his chest. The spirit dwells near the sea in Mahommedan graveyards. He meets people out walking, and causes them to have a fit. The image finds his resting place on the ground of the graveyard.

(*b*) A person sitting down with hands folded up over his chest. This spirit dwells inland in the graves of "heathen" Milano. He causes children to have convulsions. The dakan is placed on the ground in a Milano graveyard.

Bu-Au-Tō.—We have two kinds of this:—

(*a*) A person with curiously peaked head-dress, with one hand on his forehead, and the other on his chest. The spirit hits children on the head and thus causes convulsions. It is supposed to feed on the roots of the Kalinut tree, at the base of which the dakan is finally deposited.

(*b*) A person wearing a sun hat, his hands meeting over the chest. This spirit causes swelling of the leg. The dakan is deposited at the foot of any large tree.

Dohig Balo (*Balo,* widow).—A widowed lady with a long mourning cloth hanging from her head behind. She holds one hand on the tip of the heart. This spirit causes a numbness and great weakness throughout the body. Presumably the pain of mourning and the subsequent physical exhaustion after the death of a husband is so very general, that it is supposed to be due to this special spirit, which may also cause physical weakness on occasions other than a bereavement. This dakan is placed on the ground in the jungle.

DOHIG BALO.

Dohig Assam.—A long-haired old man with his left hand to his lumbar region. It is used for lumbago. This spirit frequents the neighbourhood of the Assam paya trees (*Zalacca conferta*) in the swamps, and he eats the fruits of this palm. Sometimes one meets it in the jungle, and then one should throw a dead stick at it. The dakan is put out into the jungle on the ground.

Dohig Darat.—A woman wearing a sun hat, her long hair sticking out behind, When she meets a mortal being, her hair pricks one's skin and the sufferer has a feeling of pins and needles all over, with internal fever. It is eventually deposited in the jungle.

Pulum.—A person with a long, peaked head gear, and with a dart stuck in one eye. When this spirit blows his dart in the eye of a human being, the result is

ophthalmia, or other eye disease. The spirit inhabits Moslem graveyards, where the dakan is eventually deposited after the dart has been extracted.

Dalong Tugan.—A person armed with a *parang* (sword) and shield, and in the act of throwing a spear. When this spirit throws his spear the result is sharp pains in the chest; if it catches the heart, the sufferer will succumb. The dakan is put on the ground in the jungle.

Bĕlălangan To.—A person with a blow-pipe and bamboo case containing darts. In the specimen belonging to the Sarawak Museum, the dakan is without its blow-pipe, as the maker of the image was afraid that the weapon would have been misused. This person is ornamented with a bead necklet and a pair of armlets such as the less civilized of Sarawak natives now wear. This spirit, by blowing his darts, causes sharp pains in the thorax, or in any other region of the body at which he may choose to aim. The dakan is often used after *Dalong Tugan* has been tried without success. It is eventually placed in the jungle.

PULUM. BĔLĂLANGAN TO. SĔBAH GUN (A). DATA GUN. DATA TANAH.

Sĕbah Gun (*Gūn*, jungle).—There are two dakans of this name:—

(*a*) A person wearing a sun hat, his hands over his chest. He causes sharp pains in the chest and giddiness. The dakan is placed at the foot of any jungle tree.

(*b*) A person with one hand on the abdomen and the other to his head. This spirit causes sharp pains in the abdomen. The image is buried up to the waist in the middle of a path in the jungle.

Data Gun.—A person with an elongated spiky head-dress. This jungle spirit lives in the ground, and when he hears anyone coming, raises his spiky head out of the ground so that the man treads on it. Such is the explanation of a curious swelling of the feet followed by sores, attendant on a life in the jungle. The image is buried in the jungle.

Data Tanah.—This is a person whose body ends in a broad, sharpened tail.

He causes exactly the same sort of swelling as *Data Gun.* The dakan is set down on the ground in the jungle.

Gĕlap Gun.—A person wearing a sun hat, his hand up to his throat. He causes coughs. The image is placed at the foot of a large tree.

GĔLAP GUN.

Jakau Gun.—A person with a bifid head-dress, his hands crossed over the chest. This spirit causes ophthalmia. The image is put at the foot of a small tree in the jungle.

Bĕlum Gun.—A small person wearing a sun hat, his hands together over the stomach. This spirit causes the feet to swell and itch. The image is buried in the jungle.

Bubun Banei Bejerunei.—This spirit lives far away in the deepest recesses of the jungle and is Rajah of all the jungle spirits, whence he issues his orders to the other jungle spirits. He has some power for good and can grant long life, riches and children, though he is not so powerful as *To iang.* He causes very low fever. The image finds its resting place at the foot of a fig tree in the jungle.

Dalong Pelekong.—A man armed with *sumpitan* held up to his head, and with *parang* by his side; beside him trots his dog. This jungle spirit is made like a Kayan, seeing that the warlike Kayan, four or five generations ago, were wont to swoop down from the interior upon the villages of the unsuspecting Milano. This spirit is supposed to come down from far up river, floating in a *doyan* or dyeing trough. With his *sumpitan* (blow-pipe) this spirit blows darts at unsuspecting mortals, causing sharp pains in the regions of the lower ribs. The image is put in the jungle either at the foot of a large tree, or at the source of a jungle stream in the water.

Obsolete Words and their Meanings.

The words used as names for these dakans are mostly of unknown meaning. Some few are known elsewhere, *e.g., Potianak* (see note on *Potianak laut*); *buau,* which is well known to Land Dayaks as the ghost of a person killed in war; *iang,* also a Land Dayak deity, their divine instructor, the word *yang* being an old word used of the greater Hindu deities; and *jins,* the genii of the "Arabian Nights"; *pulum* may, perhaps, be the same as the *polong* of pagan Malays.[1]

At Matu and Oya the Milano name for the pith images is *bĕlum*; at Mukah *belum* means an enemy in the jungle. In our description of the dakan *Tō Iang* we mention the names of the living pillars separating the spirits; these names, belonging as they do to the obsolete "spirit" language, are almost all unknown to the average Milano. Such are *bĕlĕbang,* meaning a butterfly; *tatin,* the carpenter-bee; *bĕlebai,* the small phosphorescent centipede; *kĕlĕnatio,* the biting field-cricket; *belulei,* a night-flying beetle; *sĕlĕpunai,* a small hairy caterpillar; *bĕnĕnawa,* a large grasshopper; and *bĕlĕlayang,* the long-beaked fish known to Malays as *ikan julong*

[1] Skeat's *Malay Magic,* p. 328.

(*Hemirhamphus*). The other living pillars of the same dakan have names of modern use, viz., *babang*, the coconut-beetle (a large Dynastid); *siat*, a large white beetle larva (of *Oryctes rhinoceros*); *tiek*, a jumping beetle (an Elater); and *tado*, a caterpillar with poisonous hairs. In the case of the dakan names to which we can assign no meaning, it may well be that many of them are old Milano words of some such simple significance as those just mentioned, though some may be the names of the reverenced deities of other peoples with whom they have come in contact (*e.g.*, their *Jin*).

At the end of this paper we give some verses of the obsolete language as used by the medicine doctors in the incantation of a Bayoh ceremony. In all probability this "language of the spirits" is but the language of the common people as spoken by them a few generations ago; in recent times Malay has come into general use, especially where the Milano have adopted Islamism. Even the names of the dakans have now, in many cases, a Malay rendering in common use. For instance:—

Pontianak laut is the Malay form and *Potianak dāt* is Milano.
Naga terbang „ „ „ „ „ *Naga besilieng* „ „
Dohig darat „ „ „ „ „ *Dohig daya* „ „

In these and several other cases the first form is ordinarily employed by Milano.

Burial Customs.

Coffins of Milano are made to represent either a crocodile or a dragon, the cavity being cut in the body of the figure and closed by a lid above. Within the coffin is placed the corpse, specially draped for burial, and on the lid is an anthropomorphic image of plaited *nipah* leaf, which is covered over with a red cloth, red being their mourning colour. A similar leaf image is taken home and kept by the nearest relative. The coffin is deposited in the family dead-house or *bakut*, where it rests on two trestles of bilian wood. From a hole in the bottom of the coffin a bamboo tube leads downwards into the ground and serves to carry away putrefied matter; the lid is sealed down. When nothing remains but the dried skeleton, it was, in former times, customary to remove these bones to a mortuary called a *jerunei*. This is a cylindrical wooden structure, vertically arranged, reaching above ground to a height of about 18 feet, and having a width of about a yard. Below, it rests in a deep hole, and in placing the *jerunei* in its position it was customary to have a slave at the bottom of the hole; the huge structure was, during the ceremony, dropped on the person of the helpless slave. Sometimes another slave would be bound to the top of the *jerunei*, where he would starve to death. At the top of the mortuary a large jar is supported between four prongs sticking upwards from four corners of the *jerunei*, and this jar receives the newly-arrived remains. Lower down the structure a large aperture in the side leads into the cavity of the mortuary; into this cavity the skeletons of the jar are placed when there is no further room for recent arrivals. The woodwork is elaborately

carved with phyllomorphic designs. Only very few of these *jerunei* are now in existence, and it is almost certain that no more will be made. Some fine specimens of this odd-looking grave are still to be seen amongst the Long Kiput of the Baram River.

The *bakut* mentioned previously is a one-roomed house built according to no stereotyped designs, and there is much variety of taste shown in those of a graveyard. They appear to vie with each other in producing a building of greater beauty and endurance, so much so that it is often said of them that the houses of the dead are usually better than those of the living. Often the wood is of *bilian*, the toughest and most enduring of Bornean woods, and this is elaborately carved at the sides and on the ridge of the roof, the side designs being apparently phyllomorphs and those of the ridge being largely made up of dragons in various attitudes. The size and finish of the *bakut* varies according to the wealth of the family who built it. From the roof and sides of the house project a number of flags and opened umbrellas, which give an air of gaiety to a place of otherwise sombre features. The graveyards may contain a great number of such *bakuts*.

Coffins are temporarily buried, but this only occurs sometimes when there is no *bakut* (family dead-house), and burial should not take place until the *sabong* (cock-fighting) and feast have been held. In such case the coffin is buried from one to ten days after death, according to means: it is the custom that as long as there is an unburied corpse in the house, food and drink must be offered to all who enter, which, of course, entails considerable expense. Having buried the coffin, the relations put up a *bakut* as soon as possible, and when it is finished the coffin is dug up and placed in it. If they already have a family *bakut*, the coffin is put straight into it. Those who can afford it always have a *sabong* (or cock-fight) for the benefit of the dead man's soul. This may continue several days, and absolutely open house is kept all the time. As much as $800 was spent over this on one occasion lately, but from $200 to $500 is more usual, nowadays.

All the cocks killed and things used at this *sabong* are supposed to become the property of the dead man's spirit.

When a man dies, his soul comes out of his body and is met by *Jepang*. *Jepang* conducts the soul to the entrance of Hades, where *Balo Adat*, chief of the realm of the dead, receives it and allots it a place. After the *sabong* a journey is made to the burial ground, the coffin opened, and some one knocks loudly on the lid with a piece of wood. Then another person, who is conversant with the ancient language, sits before the opened coffin and, talking in that tongue, asks *Balo Adat* to allow the dead man's spirit to revisit the resting place of his body, and the soul accordingly makes the journey back from the country of the dead. Then it is told what has been done during the *sabong* and asked to take possession of the things offered for its prosperity in the next world. The soul then goes back to the realm of shades, where it henceforward is enabled to enjoy all the property presented to it by its relations on earth. The coffin is then shut and returned to its place or

buried, and this ceremony, the last duty of the living towards the dead, is finished. The Mukah Milano, although now great gamblers—having caught the vice from Chinese and Brunei people—do not bet on the result of these cock-fights. When a cock is killed, it is handed over to the women to be cooked and forms part of the feast.

Distribution of this and Cognate Forms of Spirit Worship.

It is somewhat remarkable that the dakan custom of Spirit Worship is a very isolated one in Borneo. It is, in fact, confined to the Milano: at the same time it is quite a usual thing for other natives of this island to make images to represent spirits, but these are rather of the nature of tutelary deities and remain about the house or village for an indefinite period. And again, in cases of general epidemics or of serious sickness of some important person, it is a general custom of other races as well as of Malays to construct small or large spirit boats, known as *lanchangs*, which are floated down the river.[1] According to Mr. Boden Kloss, a similar custom is in vogue in the coast villages of Singapore, Johore, and East Sumatra, and in the islands of the Rio Linga Archipelago: here, when a man falls ill, he makes either a human image or a house, or a small ship, into which the spirit of sickness enters to the relief of the sufferer: the former two would be taken to the jungle and hung on trees, and the boat would be sent off to the sea. Such is the custom of people who are real Malays. In many parts of the Malay Archipelago images of similar appearances are common, but they are usually more permanent and are not used in the same way as the Milano dakans. A collection of images acquired by Mr. C. Boden Kloss from Nias, West Sumatra, has a fairly general resemblance to our dakans, and in the case of a few individual images the likeness is very striking. We are informed by Mr. Boden Kloss that the Nias images are kept in the houses of the natives as household deities.

Something very similar to the Milano custom is to be found also amongst the Toba Batak, living in the interior of Sumatra to the south of the Tobo Lake, where in case of disease they carve images out of the stem of a banana tree. In the southern part of Bantam (island off Java) images are made of a kind of vermicelli made from rice paste, and these images are deposited in the jungle to please the spirits.

As we have previously mentioned, the Milano are quite distinct from Malays, belonging to the group of tribes known as Kalamantan, which, we opine, is closely related to the wilder tribes of Sumatra and other islands of the Archipelago. But we have seen that their religious customs are shared to some extent by Malays as well as by the more closely related tribes, and we are inclined to think, therefore, that the spirit worship just described is but a much exaggerated product of a simple religion which in essential principles was common to pre-Islamic Malays and to the above mentioned peoples (Indonesians); and that it is carried to the greatest extreme

[1] See also Skeat's *Malay Magic*.

by the Milano of Sarawak. We suspect that the images made in these islands have a unity of origin, in spite of the fact that they are used quite differently in the various localities. When the ancestors of these people learned the notion of image making we do not know, but it seems probable that the custom is one of considerable antiquity, and of internal origin, seeing that the Indonesians of practically all the far-off isles practise some such form of spirit worship.

The materials for most of the facts mentioned in our account of dakans was supplied by an aged Bayoh man of Mukah. Many of his statements and names have been satisfactorily checked by information supplied from a perfectly independent source in Kuching. Quite possibly, however, one or two of the lesser dakans are special pet inventions of his own, and we imagine that most Bayoh men occasionally strike out a little way in a new direction. In conclusion we venture to predict the gradual extinction of these interesting customs at no very remote date: Islamism and Christianity are gradually displacing paganism, and at the same time, by contact with Europeans and civilization, the Milano are perhaps becoming less credulous.

Incantation Chant in the Language used by Bayoh People.

Collected by the help of Father B. Mulder from a well-known Bayoh man of Mukah.

1 Pado paman dĕna
Pado lilei dua ida
Pado Jin Arabi Diwa
Mĕlukut mĕran bunga.
5 Pado rungo paman mara
Tugo ringei tĕpa
Tĕgusan tĕpa data
Bĕsalam mara lipa
Pado paman bawai mara lipa.
10 Ringei bĕbai lipa
Kilei kena rawai
Pado paman dĕna
Mara pisei kĕna lipa.
Lipa pisei kĕna rawa
15 Pado paman ba'ai
Juloh kŭman bau bara bato ladai
Pado miwik miai
Chelaka mara surai,
Deggan pallei būt atai
20 Jikalau sĕta jagi adai
Bĕkira puhun miai
Pado kŭman daya
Pado lilei dua ida
Mĕpit ringei miwik mara
25 Pado kuman dawai
Pado daya paman jangai
Mĕpit mara miwik miai
Chelaka deggan atai
Pado kuman bau surai
30 Miwik mara mĕpit sĕlai
Chĕlaka deggan atai
Bărăngkali jaji silong adai
Mara lipa ringei nusai
Lato talek linga.
35 Talek bumei kŭman bau bara
Mĕna'ah midan gega
Gega kawai bajo pila
Miwik rungo mĕpit mara
Bărăngkali lo'mara lipa
40 Miggi' jaji bĕba sĕta
Lato talek bulai
Talek linga bulai sawai
Mena'ah midan nirai
Gega tabor aran pakai

45 Sĕno gega puhun kawai
Miwik tĕpa tugoh sawai
Tĕgusan to jangai
Bărăngkali sĕta tugan alai
Pado pawang dena
50 Pawang liko kŭman bau bara
Gnada lelo se remua
Bărăngkali puro lipa rawa
Bĕjaji bĕba kira
Lato talek linga
55 Medeli sama diwa
Pado mĕpit miwik mara
Bărăngkali uro jaji lipa
Bĕjaji bĕba kira
Mara pisei kena lipa
60 Payun (berayun) piro pawa
Bau tali pusan sĕga'
Kedong bei tada
Tō mugi menga rĕja
Tō mugi mimun bunga
65 Mematun bunga tada
Lato talek bengo
Talek lilei kŭman bau bato
Minyai kawai menyut bajo
Miwik mara, mĕpit rungo
70 Lato talek linga
Talek kŭman bau bara
Lato bengo lato kŭman bawai mebo
Miwik mara mĕpit rungo
Timan kira yadin uro
75 Bĕkira kawai puro
Mĕpit mara miwik rungo
Mara pĕrai nabor tō
Ba miggi' sĕta jaji uro
79 Selamat deggan liko.

(NOTE.—In the above, final *ei* represents the sound of *ay* in the English "day," "tray," etc.)

The Bayoh calls on the spirits (the names "Jin" and "Arabi Diwa" seem to be borrowed and incorporated into the old verses, but *Mĕlukut meran bunga*, or "noble," a female spirit, does not sound so familiar) as if they were far away up river, to "come in boats floating quickly" (*pado paman dena*) and take away the sickness, remove the evil, etc., saying that if the spirits wish to do so it is certain that they can. In fact, the whole incantation is a succession of appeals of this sort to the spirits, who come gradually nearer and nearer until the chant addresses them as if they were just outside the house, and finally as though present in the room.

NOTE.

Even in this old language or *tĕlabau dana* there is a good sprinkling of Malay words, often pronounced wrongly because a Milano either cannot or will not give them the proper sound in speaking.

i.e., *bato*, in line 16 is the Malay *batu*
bayo „ „ 37 „ „ „ *baju*
atai „ „ 19 „ „ „ *hati*
linga „ „ 34 „ „ „ *tĕlinga*.

These have been written in the Milano style for the sake of rhyme, as they sometimes end a line in the chant, but a few other words have been written as pronounced by Malays. Thus *chelaka*, if written as pronounced by Milano, should have appeared *selaka*. An ordinary Milano cannot pronounce the sound *ch*.

The word *yadin* in line 74 has been written as the Milano pronounce it, in order to show how an adopted word is sometimes distorted. It is the Malay *jadi*.

FIG. 2. GROUP OF MILANO.

FIG. 4.—WITCH DOCTOR AND APPARATUS.

FIG. 1.—SICKNESS BOAT OR *LANGHANG*.

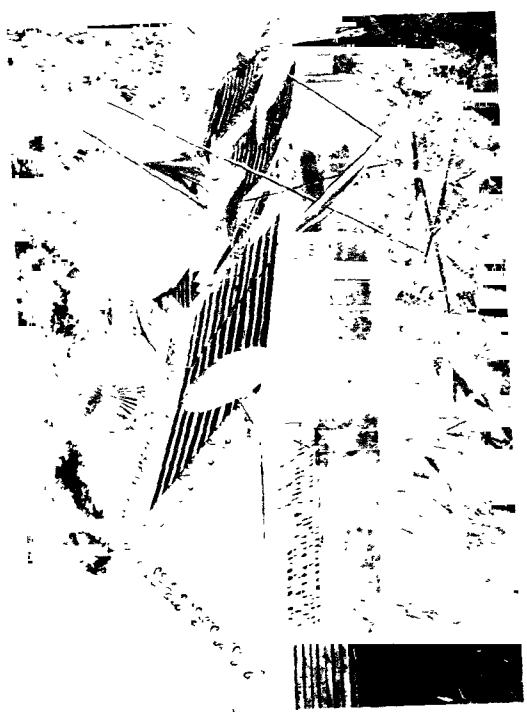


FIG. 3.—A GRAVEYARD.

SPIRIT WORSHIP AMONGST THE MILANO OF SARAWAK.

HINDU BETROTHAL OBSERVANCES IN THE PUNJAB.

By H. A. Rose, Local Correspondent of the Royal Anthropological Institute.

Shastric Ideas on Betrothal.

A Hindu friend[1] has furnished me with the following account of orthodox Shastric ideas on the subject of betrothal, and I prefix it to my notes on "Hindu Betrothal Observances in the Punjab," as it contains many points of interest.

The relatives who can give a binding promise of betrothal are:—the father, paternal grandfather, brother, a *sakulyâ*,[2] and lastly the mother. But if any one of these disregard the *prikratî* or *kûlâchar* (family custom) he loses his or her privilege and it devolves on the next in order. *E.g.*, if the father is inclined to sell his daughter, the right to betroth devolves on the grandfather, and so on.

Betrothal being governed by various considerations, it is no hardship on a boy or girl to betroth them in infancy. The guardian of the girl should not only see the boy's body, but have regard to his conduct, family means, education and repute. He should choose one whose age is double that of the girl, but not treble her age or more. The boy should be sound in body and in mind, and his family should be free from hereditary disease. He should not live too far away, be constantly engaged in war, or an ascetic, and, apart from these general considerations, he should have the following particularized qualifications:—

Broad or deep should be his chest, face and forehead, his navel, voice and *satya* (inherent power).

Short his throat, back, male organ and legs.

Fine (*sakhsham*) his hair, nails, teeth, flesh and the joints of his fingers.

Long the distances between his eyebrows and his breasts, his arms, his nostrils and his chin.

Red should be his palate and tongue, the soles of his feet and the palms of his hands, and both the corners of each eye.

Countless other points of palmistry have also to be considered. Thus, a boy with no lines, or too many, in his hand will be poor and short-lived. Lastly, horoscopes have to be consulted, and it is important that neither party should have been born in the *mangal râs*, or house of Mars, because, if so, his or her mate is doomed to an early death.

On the other hand the girl should be *aspinda*, *i.e.*, not related to the boy within the following degrees, thus:—

She should not be of the same *gotra* as the boy. (The *got* of the maternal grandfather is also sometimes avoided.)

[1] Pandit Shib Râm Dâs, a Brahman of the Ganghâr section (Bashist *gotra*) of Bunjâhî status, whose family was originally settled in the Jhang District.

[2] The *Sakulyâ*; *i.e.*, one of the same *kul* or family.

She should be a virgin, beautiful, young and free from disease. She should also have a brother, for otherwise, according to the marriage contract, her first-born son would have to be given to her father, in order that he might become his maternal grandfather's heir. Various other qualifications are prescribed; health, good repute, a swan-like gait, fine teeth and hair, delicate limbs and soft red-soled feet without prominent joints. Her fingers and toes should be separated, and the palm of her hand shaped like a lotus for luck. Her shape should be fish-like, and on the soles of her feet there should be the marks of a goad and barley-corns. Her knees should be round, her legs free from hair, her forehead broad and prominent, the navel deep, with three deep wrinkles in the abdomen, the nipples round and hard, the throat like a lion's, the lips as red as a *trinha* fruit, the voice soft like a cuckoo's, the nostrils evenly matched, and the eye like a lotus. Lastly, her little toes should not touch the ground lest she become a widow; the second toe should not project beyond the big toe lest her character be lost, and her legs should not be long and thin, for that, too, is an omen of widowhood. Hair on the legs presages misfortune, and a prominent abdomen lasting sickness and sterility. Her eyes should not be a reddish brown, nor like those of a cat, for the latter denote easy virtue. Hair on the nipples will bring misfortune on her husband. Dry hair and everted lips show a quarrelsome temper, and so on.

Shastric law classifies women into four groups; Padmanî, Chitarnî, Sankhanî, and Hastnî.

When all these points have been investigated and the betrothal decided on, an auspicious day is fixed for its celebration, which should not take place in the month of Poh, Kâtik or Chet, when Venus and Jupiter are on the wane, during the *shrâdhas*, annual or general, *dwitîk* (intercalated month), or the *anatrâ*, when Venus and Jupiter are in the same *râs*, and so on. Sundays, Tuesdays and Saturdays are also to be avoided.

Betrothal was generally observed during the following *nakshatras* (asterisms):

Utrân and Parhân { Phalganî. Khârân. Bhadarpadân.

Also in Rohni, Kritkân, Mrigshar, Maghhân, Hust, Swâtî, Utradhân, Kutân and Reotî.

On the day appointed for the rite the boy's party go to the girl's house and both parties are there seated, while Brahmans recite the *mangha-charan* or benedictory prayers, and Shrî Ganeshjî is worshipped in a brass dish (*thâl*); rice is thrown on Ganeshjî and the boy's party, and sometimes red-coloured water is also sprinkled over them. The girl's guardian then announces that the girl, daughter of so-and-so, is betrothed to the son of so-and-so. This is called the *wâkdân*, *i.e.*, "the *dân* or gift by word of mouth," and is the essence of the betrothal contract. It is now irrevocable, and there is a very strong feeling against breaking it.

When once the promise has passed the lips of the girl's father, it can only be withdrawn for grave causes. A Sanskrit adage says:—*Sakrit pradiyaté kanyâ,* "a girl is given but once." Formerly, in respectable families, a betrothed girl whose *fiancé* had died could not be married, and if such a marriage occurred it brought social discredit on the family. A Mirotra Khatrî family in Multân is still looked down upon because it once contracted a marriage of this kind.

Then a *janeo,* or sacred thread, fruit, flowers and some clothes are given to the boy by the girl's brother or Brahman. The girl's Brahman applies the *tilak* to the boy and his kinsmen. The boy's parents and kinsmen make gifts to Brahmans and distribute money among them, an observance called *Náwán* (lit. name).

The boy is next taken to his father's house when a morsel of bread, butter, sugar and *khichrî*[1] is given him. This rite is called *Grâhiṇ denâ* (or gift of a morsel of bread). The females also distribute *khichrî* to the brotherhood, who, in return, give them presents. Till far into the night, songs are sung by the women.

Betrothal thus effected creates a kind of relationship, so that if one of the parties to it dies, the other is counted impure for three days.

In some families *gur* and a rupee, five pieces of turmeric, some *supârî* (betel-nut), rice and fruit are thrown into the laps of the boy's party at the betrothal.

Taking money for a girl is strictly forbidden by the Shâstras, and one who takes it goes to hell.

A proverb says:—

Kanjar te Qasai
Chuṭ nâl chuṭ watâî.

meaning that low-caste men are divided into (i) Kanjars who prostitute their girls; (ii) Butchers, who kill them; and (iii) those who exchange their persons.

HINDU OBSERVANCES.

Amongst the Hindus betrothal is a contract, and is, as a rule, an indispensable preliminary to the marriage of a girl, though a woman once married cannot again be betrothed according to the ceremonies of a first betrothal.[2]

Betrothals are of three kinds:—

(i) *dharm*[3] or *pun,* in which the girl is given by her parents as a quasi-religious offering to her future husband.

(ii) *watta satta,*[4] (exchange) in which two or more families exchange brides.

(iii) *takke,* or *takkîân dî pachâr,* in parts of the South-west Punjab, in which a bride-price is more or less openly paid.[5]

[1] This is the custom in the Jhang District.

[2] *Punjab Customary Law,* ii, p. 118.

[3] *Dharm dî pachâr* in parts of the South-west Punjab.

[4] *Watte dî pachâr* in parts of the south-west.

[5] Such a betrothal (or the price paid for it) is said to be called *dambah* in Ludhiâna. *Pun* betrothal is confined to the higher castes, and instances rarely occur among them of the

I. The *dharm* or ritual form of betrothal is a religious rite. In it the initiative is almost invariably taken by the girl's parents.[1]

Thus in Gurgaon her father sends his family barber and priest to search for a suitable boy. When they have found one they return, and, if horoscopes are kept, compare those of the pair to see if they are in accord. If the girl's father approves of the match he sends the two delegates again to the boy's house with the signs of betrothal called *ṭîkâ* or *sikka*.[2] If the boy's father approves of the match,[3] he calls his kindred together and in their presence the delegates[4] place the tokens in the boy's lap, and some sweets into his mouth, simultaneously proclaiming the girl's name. The girl's barber or priest also makes a mark (*ṭîkâ*) on the boy's forehead with his thumb.[5] During the ceremony the boy is seated on a wooden plank (*chaukî* or *patrî*) slightly raised off the ground, on which, after it has been swept and smeared with cow-dung, a square (*chauk*) has been traced with flour.

The signs of betrothal vary, but in the South-east Punjab there is almost always a rupee, often a coconut and sometimes clothes.

Elsewhere in the provinces the coconut is replaced by dates, usually five in number, but often two or seven; thus in Gurdâspur the girl's father sends seven nuts (*chhowâtas*), one or more rupees and some clothes as a *shagun* or conventional gift to the boy. These are made over to him by the *lâgî* (a priest, a barber, or a bard) at his parents' house in the presence of his kinsmen, and in return he sends the girl a *shagun* of ornaments and clothes.[6]

In the Western Punjab the rite is quite as distinctively religious. Thus in Muzaffargarh, although the boy's father and kinsmen take the initiative and go

initiative being taken by the boy's people. Indeed, the instances noted are all from the Western Punjab, where the Hindu element holds a subordinate place under the Mohammedan tribes. Thus in Shâhpur, among most of the Khatrîs and Aroṛas, the boy's father takes the first step, but among the Khokharain, or upper class, Khatrîs, the girl's father does so (xv, pp. 22–23). In Muzaffargaṛh and Dera Ghâzî Khân, on the Indus, the boy's father always appears to take the initiative (xx, pp. 14–15; xvi, pp. 2–3), but this is not the case in Peshâwar (xvii, p. 28).

[1] In Hindi a betrothal is called *sagâî*, in Punjabi *mangewâ* or *mangnî*, from *mangnâ* "to beg in marriage." Kurmâî is a term widely used, especially in the Punjab. In Muzaffargaṛh (South-west Punjab) *pachâr* is the term used by Hindus. *Ropnâ* is also used in the Eastern Punjab for betrothal, but it literally means the present (of seven dried dates, etc.) sent by the girl's father to the prospective bridegroom.

[2] Also called *ropna* (in Sirsa). The use of the term *ṭîkâ* (*ṭikkâ* in Punjabi) in this sense is unusual and apparently confined to the South-eastern Punjab. Thus in Hânsî the girl's father sends a barber with a rupee to the boy's house, and the barber gives this rupee (which is called *tîkâ*) to the boy. In Jhelum *tîkâ* is used as equivalent to *tilak*.

[3] No public inquiry is made about the girl, but the women find out among themselves.

[4] Called *negî*, as entitled to *neg* or *lîk*, *i.e.*, dues, in the South-east Punjab. But a commoner term is *lâgî*, *i.e.*, one entitled to *lâg*, dues.

[5] This mark is more correctly and usually called *tilak*. It is usually made on the boy's forehead by the girl's Brahman with turmeric and rice. Occasionally her barber affixes it. In Jhelum it is affixed during the reception of the *shagun*.

[6] *P.C.L.*, xii, p. 3.

empty-handed to the girl's house,[1] they are there met by her father or guardian with his kinsmen and presented with *gur*, fruits or clothes, and the Brahman, if present, performs the worship of Ganesh and recites the *gotrachâr*. The *gur* and fruits are taken to the boy's house and there distributed.[2]

This rite is held on an auspicious day and must be solemnized at the girl's father's shop or pleasure-house, but not at the house where his women-kind live,[3] and after it the boy's father is called *putreta* and the girl's *dhetà*, the relationship called *sain* or *senr* henceforth existing between them. This relationship prevents their visiting each other or even eating together, while the future son-in-law (*jawâtra*) may not even speak to his father-in-law (*sohra*).

Thus betrothal in the South-west Punjab is a solemn rite and the tie it creates is irrevocable, so much so that it can only be annulled owing to impotence or incurable disease, and even when the boy or girl is thought to be dying the tie between the pair is solemnly cancelled by the following rite:—

In Muzaffargarh, where the rite is called *pânî pilâwan* (*i.e.*, giving water to drink), the boy is called to the girl's death-bed and made to stand by her pillow and drink some water. The girl also drinks, and then the boy says, "Thou art my sister." This, of course, dissolves the betrothal, but it is understood that if the patient recover the tie will hold good. In the event of the boy's not arriving till she is dead the girl's body is not burnt until he has looked upon her face, or if the body has to be burnt before his arrival some cotton is smeared with blood from her forehead and thrown into his house. Every effort is however made to prevent the cotton being thus thrown into the house and a watch is kept over it, the belief being that, if the cotton is thrown in, it will bring ruin upon the dwelling. After four days the blood-stained cotton cannot be thrown in and the house is safe.

In the adjacent State of Bahâwalpur a very similar ceremony called *mathe-lagâwan* is performed to cancel the betrothal. Thus, if the girl be at the point of death the boy goes to her and standing by her death-bed gives her some sweets, saying, *hân kâkî, mithâî ghin*, "dear sister, take this sweetmeat," and she must reply *liâ bhirâwâ*, "brother, give it me."

This cancels the betrothal, but if the sick child recover and the parents of the couple agree to the renewal of the contract the betrothal ceremonies are again performed by the parties.

The *mathe lagâwan* must be done at the house of the sick child, but his or her parents do their utmost to prevent it as it brings calamity upon their family. If

[1] They say they have come to arrange for the *pachâr* (betrothal) of so-and-so *chaudhrî's* (notable's) son. The reply is that the girl's father will consider the proposal (*wichâr karnâ*), and it appears to be etiquette for him to promise a reply in a week or a fortnight's time, when the boy's people again approach him.

[2] xx, p. 15.

[3] In Jhang there is a survival of this rite, a girl being shown her betrothed's bier, if the latter die before their wedding; or she breaks a clod of earth at his door or behind his bier, and, having washed her clothes, returns home.

they knowingly permit it no other Kirâr will contract an alliance with them. Consequently guards are posted at the door of the sick child's house to keep out the intruder who makes every effort to get in. Both sides resort to violence, so much so that sticks are sometimes used and serious affrays ensue. Disguise is even sometimes resorted to in order to obtain access to the sick child; for instance, the garb of a sweeper, etc., but if this too fail it is sufficient for the betrothed to strike his or her forehead against the wall of the sick child's house. This knocking the wall, which is termed *sawan*, must be performed within four days from the sick child's death, after which it is of no avail. If a child fails to perform the *mathe lagâwan* or *sawan* he or she cannot secure a second betrothal, being regarded as ill-starred, but if the ceremony be duly performed he or she is considered purified, and can readily contract a second betrothal.[1]

II. Betrothal by exchange is further divisible into three or more varieties, viz.: (i) *amho sumhanâ* or simple exchange; (ii) *trebhanj* or threefold barter[2]; (iii) *chobhanj* or fourfold, and so on, in Muzaffargarh.[3] In all these the parties concerned meet at one place by appointment, and enter into the contract of giving the girls, one to the other, after which each girl's guardian gives *gur* or fruits to the guardian of the boy to whom his girl is betrothed. Then the Brahman, if present, performs worship of Ganesh and recites the *gotrachâr*. The *gur* or fruits are taken home and distributed.

In Jhang exchange betrothal is called *amo sâmne*, a term which in Multân is applied to direct, as opposed to *tarain vatnî* or indirect exchange. In Ludhiâna betrothal by exchange is called *hatârh*.

In Ludhiâna exchange marriage (*batte kâ biyâh*) sometimes takes the form called *bâdhe kâ biyâh* in which a girl of, say, eighteen years of age is exchanged for one of five. In such a case, a kind of disparity fine (*bâdhâ*) has to be paid to the party giving the adult girl.

Among the Gaddîs of Chamba, marriage by exchange is called *bolâ*, and the first of the rites observed resembles those described below in a *dharma-puna* betrothal. But when all the boy's people go to complete the alliance, a grindstone, pestle and *sil* (mortar) with three or five lumps of *gur*, *supârî*, *bihan*, and *rolian* are placed before them, and the *parohit* taking the *supârî*, etc., in the fold of his garment puts them in the mortar, receiving a fee of four annas from the boy's father before grinding them. He then mentions the names of the betrothed pair, and pounds up the spices. Then the *supârî*, etc., is put in a dish with the *gur* broken into small pieces, and distributed among the guests, the boy's father first taking a piece. The elder members of the bride's family do not take any, as that would be contrary to etiquette. Then the boy's father puts one rupee four annas in the dish, and from this silver the girl's parents have an ornament made for her. She also presents herself before the boy's father, and he gives her a rupee. The rest of the ceremony

[1] The *mathe lagâwan* is also observed in the villages of the Multân District.
[2] In which three betrothals are arranged in connection with one another.
[3] xx p. 15.

resembles that observed in a *dharma-puna* betrothal, but the coins put in the vessel come out of the boy's father's pocket. The whole rite is repeated in the other family's house, but not necessarily on the same day. Tuesday, Friday or Saturday is an unlucky day for these observances.

III. In betrothal by purchase the essential difference is that the initiative is taken by the boy's people, who go to the girl's house and there make the bargain. Then the girl's parents send their *lâgîs* (or more usually one man, the *nâî*) to the boy's house where the ordinary rites are gone through.[1]

In the north-eastern (Himalayan) corner of the Punjab, the initiative is usually taken by the boy's people. After certain preliminary negotiations, they go to the girl's house with their priest (*parohit*) to perform the rites. In a *dharma-puna* betrothal the girl's father gives the *parohit* some *dubh* grass, with at least four copper coins, which are to be handed over to the boy's father in token that he accepts the alliance. All remain the night at the bride's house, and after a meal, her father gives eight copper coins to the boy's father. These he puts in his dish as a perquisite for the man who cleans it.[2]

In Kullû, among the higher castes, the *parohit* fixes a day for the rite and is then sent with one or two men, with a present of clothes, ornaments, and money to the bride's house. There he makes the girl worship Ganesh, and she is then dressed in the clothes, and *gur* is distributed among the villagers or neighbours. In return her parents send a sacred thread and a betel-nut for the bridegroom, in whose village also *gur* is distributed on the *parohit's* return.

Among the Kanets, the local god fixes the auspicious day for the rite, and on that day, the boy's father or brother with two companions, takes the clothes and ornaments to the bride's house. She puts them on, and *gur* is then distributed without any worship of Ganesh. The lower classes have the same rites, but among them the boy also goes to his father-in-law's house at the betrothal.

When the initiative is not taken by the girl's father, it is fairly safe to assume that the parties are of low status or caste, and that the contract was not *pun*. Thus in Siâlkot, among the Chuhras, the boy's father goes to the girl's house with a female kinsman, and is then feasted, giving her father two rupees. Next the visitors are given an ordinary meal, and the girl's father gets another rupee. After this a blanket is spread on the ground, and the girl's father in the presence of his kin, brings a flat dish into which the boy's father puts the betrothal money, which varies in amount but is always considerable, sometimes amounting to fifty rupees.[3]

[1] *P.C.L.*, v (Ludhiâna), p. 43. But in Muzaffargarh Ganesh is not apparently worshipped in *takke* betrothals, xx, p. 16.

[2] The above are the customs in vogue among the Gaddîs of Chamba, but in the Churâh sub-division of that State the custom is for the boy's father or brother to place eight copper coins or as much as a rupee in the dish from which he has eaten. This is called *juth*, and the act *juth dâlnâ*. On the following day the betrothal contract is made.

[3] *P.C.L.*, xiv, p. 5.

Briefly, the essentials of a valid contract of betrothal are the public acceptance of the match, feasting and the exchange of gifts, the religious rites, if any are observed, being of secondary importance, even indeed if these are necessary to the validity of the contract.

It may be said generally that a contract of betrothal is irrevocable, except for certain definite causes, or in cases when it has become impossible of fulfilment. Even when its literal fulfilment is impossible owing to the death of the boy, there is a widespread feeling that an implied contract subsists to marry the girl to another member of his family. Instances of this custom are found in the Gûjars, Rors and Jats of Kaithal,[1] the tribes of Sirsa,[2] and in the Shâhpur District, where the general feeling is that the girl is a valuable piece of property, and that betrothal is a contract to transfer her ownership to the boy's family, when she reaches a marriageable age, but the boy's death cancels the contract.[3] It would appear that the castes or tribes which allow widow re-marriage have a strong feeling that the betrothal duly effected gives the boy's family a claim on the girl's hand, so that, in the event of her original fiancé's death, she may be married to another boy of the family. In Jhelum, on the other hand, the contract is revocable unless the formality observed be the *waq*, which is to all intents a marriage.[4]

Thus the advantages of the contract are all on the boy's side, in having secured a valuable chattel, little is thought of the girl's claim on the boy, only very exceptional circumstances would make the boy's family refuse to find another match for her in the event of his death. If the girl die the contract is void, her family having contracted to transfer a specific article, to wit a particular girl to the boy's family, and as that article no longer exists the bargain cannot be fulfilled, and her family has no claim to marry another of its girls to the boy.

The causes which justify a refusal to carry out a contract of betrothal are mainly physical (*e.g.*, leprosy, impotence, blindness, or mortal disease in either party). Immorality on the part of the girl is generally also a valid cause. As a rule immorality on the boy's part is not recognized as a cause for refusal to carry out the contract, and speaking generally, the contract is considered much more binding on the girl's relatives than on those of the boy, so much so that among the Jats of Lahore this principle is pushed to an extreme, and it is alleged that the boy can break off his betrothal at pleasure, whereas a girl cannot.[5]

A betrothal is also said to be revocable on other grounds, *e.g.*, on the discovery that the parties are within the prohibited degrees of relationship,[6] or that they belong to different tribes,[7] and apostasy would also justify its revocation.[8]

As a rule, among Hindus, priority of betrothal gives the girl a social, though

[1] *P.C.L.*
[2] *P.C.L.*, iv, pp. 89–94; of ii (Gurgaon), pp. 116–119.
[3] *P.C.L.*, pp. 24–25.
[4] *P.C.L.*, xix, p. 18.
[5] *P.C.L.*, xiii, p. 4.
[6] *P.C.L.*, x, p. 4.
[7] *P.C.L.*, viii, p. 3; x, p. 4.
[8] *P.C.L.*, x, p. 4; xii, p. 4; xiv, p. 6; xix, p. 18; xx, p. 16.

hardly a legal, claim to be married first, *i.e.*, to be married before the fiancé takes another wife. The reason is that in a Hindu household the first married wife occupies a more or less privileged position.[1]

THE AGES OF BETROTHAL.

The age at which betrothal may be effected is not fixed, and it varies among different tribes and in different localities, so that it is impossible to generalize regarding it. Thus in Kaithal the Rajputs assert that betrothal cannot take place before the age of ten, and girls are certainly betrothed at a much later age among Rajputs than among other (and lower) tribes, so much so that it is common to defer a Rajput girl's betrothal till she is fifteen or even twenty.[2] In Amballa, the Gûjars of Rûpar put the lowest age of betrothal at five weeks: many tribes putting the maximum age at forty years,[3] but it is not usual below five. Similarly in Gurdâspur,[4] Siâlkot,[5] Shâhpur, Jhelum, Dera Ghâzi Khân, and Muzaffargarh there is no restriction as to age, but the actual customs differ greatly according to circumstances. Thus there is a tendency to defer betrothal among the higher castes to a somewhat later age than is usual among the middle castes: *e.g.*, in Lahore, Jats betroth from four to six; and Rajputs from twelve to fourteen,[6] in Shâhpur, Hindus betroth from eight to twelve, and in Jhelum, before ten.[7] Generally speaking in the Western Punjab girls are betrothed at a very early age, much earlier than is customary among the Muhammadans, but boys are often not betrothed till puberty or later. The feeling that it is a disgrace to have a grown-up daughter unmarried is very strong among Hindus. Throughout the Punjab pre-natal betrothal is unusual, but not unknown.

SOME OBSERVANCES SUBSEQUENT TO BETROTHAL.

These are purely social and of little importance. In Hansi the boy's father sends sweets, etc., for the girl on festivals. These she returns with some money. Later the boy's father sends her ornaments—called *buba*. These, too, are returned with some cash, oil and clothes added, only three or four ordinary trinkets being retained.

In Multân, Muzaffargarh, there is a similar custom called *subha*, which consists in the exchanging presents of sweets at festivals. Clothes and toys are also sent. These presents, too, are sometimes returned by the girl's people. This custom is spreading, it is said, into Sirmur.[8]

[1] Whereas among Muhammadans the four wives are, in the eye of the law at least, absolutely equal.

[2] *P.C.L.*, viii, p. 2.

[3] *P.C.L.*, x, p. 3.

[4] *P.C.L.*, xii, p. 3.

[5] *P.C.L.* xiv, p. 3.

[6] *P.C.L.*, xiii, p. 3.

[7] *P.C.L.*, xv, p. 20; xix(?), p. 17.

[8] Very similar to the *subha* observance, yet distinct from is the observance called *gur* in Multân. It consists in sending *gur* (jaggery) fruit and vegetables with two rupees (Bahâwalpur coinage, which is cheaper) to the boy's father, "some time after the betrothal has been completed."

Muzaffargarh also appears to have some distinctive local customs in the *sâg* or *wat walawan,* which consists in the girl's father sending the boy's a request for *sâg* (vegetables).

The request is complied with and fruit of any kind in season sent. After this the fathers may have dealings with each other—a thing wholly forbidden to them before this observance. After it too comes the *watr sâkh,* in which the girl's father sends the boy's fresh fruit or greenstuff. In both cases the fruit, etc., is distributed among relatives and neighbours.

In Multân the betrotheds' fathers do not even salute each other when they meet, after the betrothal has once been effected, until the *Râm sat* observance has been duly performed. For this a lucky day is chosen, and then the girl's father with some of his kinsmen takes some sweets and Rs. 1/4/., Rs. 3 or 5 in cash to the boy's home, where he finds the latter's kinsmen also assembled. He presents the boy's father with the sweets, etc., and salutes him, saying "Râm Râm" (the usual Hindu greeting). After this the two fathers may salute each other if they meet.

In Jhang sometime after the betrothal an observance called *piridai* is in vogue. The boy's kinsmen with some of his kinswomen visits the girl's home where they receive sweetstuff or a rupee each, and the women of the boy's party are seated on a *piri.*[1]

I have to thank Mr. Longworth Dames for kindly reading the proofs of this paper.

[1] A small square figure worked in stringing bedstead; a very small basket made of bamboo or *til.*—*Panjabi Dictionary,* p. 926.

REPORT ON THE HYTHE CRANIA.

By F. G. Parsons,

Lecturer on Anatomy at St. Thomas's Hospital and the London School of Medicine for Women.

[With Plate XXXV.]

The large collection of bones beneath the church of St. Leonard at Hythe has given rise to a great deal of speculation and assertion as to its origin, but, with the exception of 100 measurements made by Dr. Randall Davis in 1899, no systematic series of measurements has ever been taken.

The present contribution is a series of measurements of 590 crania from Hythe, and, incidentally, of skulls measured by the author at Dover and Upchurch in Kent, for comparison. It is hoped that, at a later date, the results of the detailed examination of the face as well as of the rest of the skeleton may be submitted to this Institute.

History of the Bones.

It is quite certain that the bones have been in their present position for over two hundred years, because the Vicar of Cheriton, near Hythe (1679 to 1719), writing in 1700, says that all records of their origin had then been lost, and the townsmen could not account for them in any way. It will be an extremely moderate computation to allow 79 years before 1679, when this vicar must have known of their existence, for all local tradition to have died out, so that we may safely say that the bones must have been under the church in 1600 and were probably placed there earlier.

In 1545 Leland visited Hythe and described the church somewhat inaccurately. He says that beneath it there is a "faire vault," but makes no mention of the bones.

This I think is all the real historical evidence available at present. Many battle theories have been advanced by Hasted and others to account for this, as they are so often advanced to account for other large collections of bones, but they have all been made comparatively recently, and have not stood the test of historical research.

Some medical observers have substantiated the battle theory by saying that the collection contains practically nothing but male bones which bear numerous marks of spear and battle axe wounds, and that, in addition, two perfectly distinct races are to be made out. How little this agrees with my own observation will be seen later on. I do not think it fair to take these gentlemen's opinions too seriously. Most of them are dead now, and any conclusions they formed were

apparently the outcome of one or two flying visits of inspection, and were never intended as authoritative pronouncements.[1]

The opinion of Barnard Davis, however, is on quite a different footing. He, apparently, never saw the Hythe series, but obtained six of the skulls for his own collection which is now in the Museum of the Royal College of Surgeons.[2] These, he said, by their shortness reminded him of the skulls of modern Germans, though he doubted whether they were other than those of Kentish people, whose only great battle had been that with death.

There seems every reasonable probability that these bones have been dug up from the churchyard and stacked under the church in the way which was quite usual in pre-Reformation days. It was then quite common, especially in towns, to have an ossuary beneath a church or a charnel house in close relation to it. There is said to be a large collection of bones walled up in the neighbouring church at Folkestone, while at Dover I had the opportunity in 1905 of inspecting and measuring some of a large series beneath the site of the vanished church of St. Peter, and these had been absolutely walled in and buried since the sixteenth century. At Upchurch, too, in the north of Kent, there is a small collection in a true crypt, and here also there is a battle tradition, though without any historic value.

The fact that Leland makes no mention of the bones does not, to my mind, prove that they were not there in 1545, because, given a crypt, its proper furniture in those days would have been bones, and their presence need not have called for special comment.[3]

One point which is noticeable about the Hythe bones is the way they are, and apparently always have been, stacked in a long pile allowing a free passage way beside them. It is only lately that it has been appreciated that what is called the crypt in this church is really a processional way provided when the new choir was built in the reign of King John. Since the time of the Reformation it has not been used for this purpose, and its north door has not only been closed but, until quite recently, has been earthed up on the outside by the gradual accumulation of soil.

It seems to me, and in this I have the full concurrence of the vicar, that the careful stacking of the bones along one side only of the processional way, and that the west side, and the free passage left close to the easternmost wall of the church, points to the bones having been placed where they are now while the processional was still used for the annual procession round the church, that is to say, in pre-Reformation days, though how much earlier we cannot tell.

The date of the stacking of these bones is of some little importance. Both Dr. Knox and Mr. Frank Buckland state on hearsay evidence that the bones were

[1] Lest I should seem to wish to suppress evidence pointing to a conclusion at variance with my own, I would strongly advise anyone interested in these bones to read the two papers of Dr. Robert Knox, *Proc. Ethnological Society*, 1861 and 1863, as well as that of Frank Buckland in *Curiosities of Natural History*, 4th Series, p. 181.

[2] In this series is, I believe, the very large skull described by G. Borrow in his novel *Lavengro* in 1851. He saw it in his boyhood, in the early years of the nineteenth century. By the courtesy of the Council a cast of this skull has been presented to the Hythe Collection.

[3] See also footnote on p. 422.

stacked about the middle of the last century, and that before that time they were lying scattered about the floor. Against this is the evidence of the late Reverend James Browne, vicar of Cheriton and chaplain of the Cinque Ports, who mentions the pile of bones in 1700. In addition to this there is at present in the church at Hythe an old steel engraving dated 1783 and showing the stack as it is now. It is very probable that, at the time the skulls were placed upon the shelves in 1851, a few scattered bones which were on the floor, and possibly were recent additions, were cleared up and the stack made more complete. There is, however, no reason to believe that the main pile of bones differs in its position to-day from that it held when it was first erected.

Assuming, however, that the bones came into their present position somewhere about 1550, and it is extremely unlikely that they were much later, what reason have we for believing that they came from the adjoining churchyard?

In the first place I should point to the extreme probability of such a thing in the absence of any definite evidence to the contrary. That a large number of these bones have been buried is indicated by the presence of earth in the interior of the skull as well as in the orbits and auditory passages, while on some of them particles of woody fibre remain mixed with a few hairs adhering to the occipital region, pointing to the probability of their having been buried in coffins. Moreover, I have very little doubt that the so-called spear and battle axe wounds are really the work of spades and pickaxes, and were certainly inflicted when the skulls had become friable many years after death.

I have demonstrated the great difference produced by blows of the same force and with the same weapon on skulls of people recently dead and on those which had been buried many years and, from the experience thus gained, I feel sure that the injuries found in the majority of these skulls were not the injuries from which their owners died.

Then this great pile of bones represents the remains of at least 4,000 people, men, women and children. This is no mere rough estimate, but the result of counting all the heads of thighbones seen in restacking the whole pile which the vicar has lately had done. It is absurd to think that this number of people died at any one time in Hythe. The total population is at present little more than 5,000, and although in the time of its greatest prosperity, which was in the reign of King John, the number of townspeople may have exceeded 4,000, there were at least four churchyards in which they could be buried. After this, until the time of Elizabeth, the town gradually declined.

Since the time of Elizabeth the entries of burials are available and, judging from these, it is evident that an allowance of forty burials a year for the preceding two or three centuries would be extremely liberal.

No doubt plague accounted for the death of some of these people, though certainly they did not all succumb in one visitation. We can study the effects of plague in the church records, and although the deaths are greatly increased in the particular plague years, they are correspondingly diminished for the succeeding three or four,

so that the average of five or six years, including a plague year, does not appreciably differ from that of five or six in which no plague occurred.

One more point of historical interest must be mentioned and that is that the grave-yard formerly did not exceed about two-thirds of an acre, though in more modern times it has been twice enlarged. This possibly furnishes a clue to the presence of ossuaries beneath churches in pre-Reformation times, since the habit then seems to have been to use a small churchyard over and over again while in more modern times, as soon as one plot of land is filled, more is consecrated.

Taking all the above points into consideration it seems extremely probable in the absence of any reliable evidence to the contrary that this stack of bones was finished during the sixteenth century, and that the bones composing it were gradually dug up from this or some of the neighbouring Hythe churchyards during the sixteenth, fifteenth and possibly fourteenth centuries. That, as the people whose bones these were must have died at least fifty years before they were dug up, and would represent the total burials of more than a century, it is probable that we are dealing with the remains of Kentish people most of whom lived in the fourteenth and fifteenth centuries.

General Examination of the Bones.

Although it is my hope to furnish detailed results of the examination of series of different parts of the skeleton later on, it may not be out of place to say here that the 590 skulls which have been measured consist of those which were picked out of the stack in 1851 and placed upon shelves, where they are now shown.

In restacking the main pile of bones during the last few weeks, nearly as many measurable skulls again have been found and put aside, but there is no reason to think that those measured are not quite representative. It was evident from the débris that women's and children's skulls had, owing to their more fragile nature, suffered more seriously than those of men, and this fact, no doubt, accounts largely for the excess of male over female skulls on the shelves, which I have measured. Indeed, in most recorded collections of skulls the males exceed the females.

Three additional skulls were dug up a few years ago on the site of the church of St. Nicholas. This was one of the three, or perhaps four, small churches which were in Hythe during the thirteenth and part of the fourteenth centuries, but fell into decay with the decline of the town, and were no longer used in the fifteenth century. Leland in 1545 saw[1] the ruins of these churches. These three skulls are therefore interesting for comparison, since they cannot have been buried later than 1365, as there is good evidence that after this Hythe had only one church, that of St. Leonard, left.

Of the stature and physique of the mediæval Hythe people I hope to be able to speak with more detailed knowledge later, but a preliminary measurement of 155 femurs points to the men having averaged about 5 feet 5⅓ inches, while the

[1] Or says that he saw them. Leland's account of Hythe and the adjacent church of Lympne makes me suspicious that he got his information from some neighbouring ecclesiastical centre, such as Canterbury or Saltwood, and never really visited the place.

women were about 5 feet 1 inch. (The average length of 76 ♂ femurs was 45·1 cm. and of 79 ♀ femurs 41·8 cm.)

There is no doubt that these people lived on coarse, rough food, since their teeth are in almost every case worn, often quite flat, and this applies to young people as well as old. At the same time caries is not nearly so common as it is in modern English people.

I regard this condition of the teeth as an indication that these people lived before bread was an ordinary article of diet, and when cakes of roughly ground meal were the ordinary fare. At any rate, the state of these teeth was identical with that of those found under St. Peter's at Dover, which almost certainly came from people who lived in the thirteenth and fourteenth centuries. They also form a contrast with the skulls I have examined from a disused churchyard under the site of the Bluecoat School near Newgate, most of which were from seventeenth century Londoners, and in which, while the wearing down was much less marked, caries was more common. In the recent restacking of the pile, several masses of hair were found, in which shades of red predominate. It is, I believe, a recognized fact that black and brown hair turns red by keeping, but in addition there is a good deal of flaxen hair, some of which, evidently from children, is done up in plaits. I fear, however, that the amount is quite insufficient to give us any good idea of the predominant hair tints of these people.

Besides the hair, a quantity of coarse earthenware pottery and wooden platters was found in the pile, as well as the upper part of an old shoe or boot of a very different cut from the present. All these things will be submitted to experts and reports furnished in due course.[1]

It should perhaps be mentioned besides that in the vault are some thirteenth and fourteenth century stone crosses, formerly gravestones, as well as part of the lid of a fourteenth century stone coffin. These, of course, need not necessarily have been connected with the bones, though they give some indirect evidence that burials of those times were later on disturbed.

Pathological Observations.

A large number of pathological specimens have come to light, many of which I have submitted to Mr. S. G. Shattock, who has been kind enough to advise me upon them. The commonest trouble undoubtedly is osteo-arthritis, from which a great many of these people must have suffered terribly.

Ten or twelve examples of syphilitic lesions were found in the form of ulcerations, necroses, gummata and periostitis. One skull with a large gummatous heaping up of bone has been shown to countless visitors in the past as an instance of a healing wound. If the modern theory that syphilis was brought from America by Columbus be true, these specimens were probably some of the later additions to the pile.

[1] Since the above was written the pottery has been taken to the Medieval Department of British Museum, and there pronounced to be characteristic of the fourteenth and fifteenth centuries. The wooden platters closely resemble those preserved in the old Leper's Hospital at Harbledown near Canterbury.

Evidences of ante-mortem injury are numerous, several fractured tibiæ and one or two fractured femora were found, and it is wonderful what good, straight unions were made. There are also several instances of healing wounds of the skull quite distinct from the much more numerous spade and pick-axe injuries already discussed.

The frequency of injuries quite bears out the reputation for turbulence which the Cinque Ports enjoyed during the middle ages.

I have seen the rickety tibia noticed by Dr. Knox, but apart from that have come across no evidence of the disease which I could recognize.

Measurements of the Crania.

I have divided the 590 skulls into 326 males over 20, 230 females over 20, and 34 children of both sexes up to 20; that is to say, until the suture between the basi-occipital and basisphenoid bones closes.

The division into males and females is, of course, only done to the best of my ability, and is liable to revision. Still, I have given great care to this point, and have placed a mark of interrogation against those skulls in the list which have given me most trouble in determining the sex.

I do not feel justified in giving an approximate age to the possessors of the skulls until I have the skull cap removed and cleaned, since my experience teaches me that the most reliable evidence is the amount of internal closure of the sutures. (See "Relation of the Cranial Sutures to Age," by F. G. Parsons and C. R. Box, *Journ. Anthrop. Inst.*, vol. xxxv, 1905, p. 30.) From what I can see, however, I should say that 242 are from people over 40, and 275 between 20 and 40 years.

This I should think a probably fair estimate when one remembers the numerous visitations of plague in the fourteenth and fifteenth centuries, and the notorious turbulence of the Cinque Port inhabitants.

Apart from the personal element which must always be discounted, I did not expect to find the female and children's skulls in anything like their due proportion on these shelves. It must be remembered that these bones have probably gone through the sorting processes of (1) decay in the damp ground; (2) exhumation; (3) stacking and its pressure effects; (4) modern handling. There are enormous numbers of fragmentary skulls in the great pile, and in these the women and children doubtless are in excess of the men. The inclusion of a certain number of female skulls among the males is probably counter-balanced to a certain extent by the reverse process, though in my case I do not think to the same amount. In any case, as long as the sexing of skulls remains a question of individual judgment, nothing approaching mathematical accuracy can be expected from the results of measurements, though I find that by shifting a block of 100 more or less doubtful skulls from one sex to the other, I have only succeeded in altering the average length index by ·1 per cent.

The measurements I have taken are:—

1. The ophryo-maximal length.
2. The glabello-maximal length.

3. The greatest parietal breadth.
4. The least frontal breadth taken where the temporal ridges come closest together.
5. The basi-bregmatic height.
6. The auricular height.

Personally, I prefer to work with the ophryo-maximal length rather than with the glabello-maximal, because it is uninfluenced by the size of the frontal sinuses, and also because it is more often available. Still, I think the two measurements should always be taken; partly for comparison with Continental measurements, and also because the contrast between the two lengths gives a clue to the development of the frontal sinuses, on the one hand, or the bulging forward of the forehead as it ascends, on the other.

I have also included the usual breadth and height indices, calculated by using the ophryo-maximal length as a standard in each case.

I confess that these indices mean little to me. If I am given the length, breadth, and height of a skull, I can roughly picture it and compare it with the average measurements of known series, but a skull with a high breadth index may be one of normal length and great breadth, or of normal breadth and little length.

TABLE I.—LENGTH.

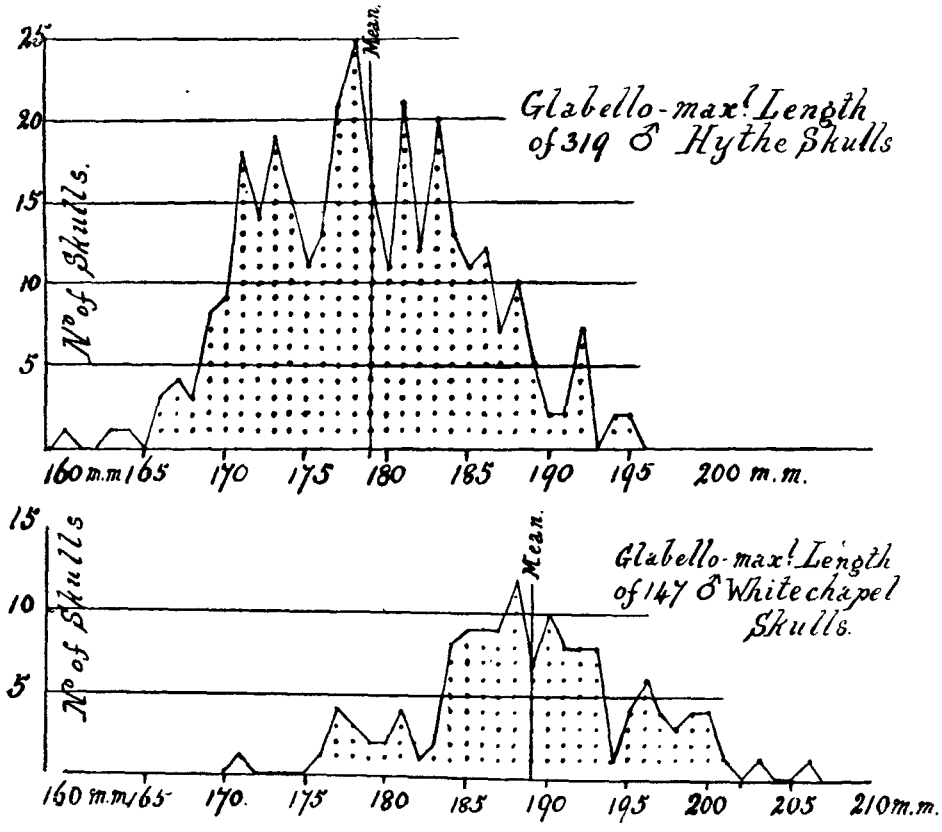
—	Males.				Females.			
	Ophryo-maximal.		Glabello-maximal.		Ophryo-maximal.		Glabello-maximal.	
	No.	Length.	No.	Length.	No.	Length.	No.	Length.
		cm.		cm.		cm.		cm.
Hythe	324	17·7	319	17·9	230	17·1	227	17·1
Whitechapel ...	138	18·7	137	18·9	143	18·0	140	18·0
Moorfields	45	18·7	44	18·9	65	18·2	63	18·3
Christ's Hospital ...	61	18·3	—	—	—	—	—	—
Cambridge Undergraduates ...	—	—	1,000	18·2	—	—	—	—
St. Thomas's Hospital Students	97	18·1	—	—	—	—	—	—
Women's Medical School Students...	—	—	—	—	50	17·5	—	—
Bedford College Students... ...	—	—	—	—	—	—	small series	17·9
British Association	—	—	?	18·7	—	—	?	17·5
English criminals ...	—	—	3,000	18·1	—	—	—	—
Upchurch	16	18·2	—	—	5	17·8	—	—
Dover	12	18·3	—	—	—	—	—	—
Bavarian	—	—	100	18·1	—	—	·100	17·3
Würtemberg ...	—	—	97	17·9	—	—	19	17·3
French soldiers ...	—	—	56	18·0	—	—	—	—
Long Barrow ...	17	18·7	16	19·1	12	1·84	13	18·3

On looking at the above table the shortness of the Hythe skulls is very striking; they are shorter than anything else in the table except the glabello-maximal length of the Würtemberg males, while the female length of 17·1 is less even than that of the German female skulls.

Judging from the Hythe, Whitechapel and Moorfield series, which, taken together, include 507 male and 438 female skulls, it seems that the male English skull averages about two mm. more in the glabello-maximal than it does in the ophryo-maximal length, while in the female skulls the two lengths are practically the same.

In this and the following tables the Whitechapel and Moorfields skulls are those published by Dr. Macdonell in *Biometrika*, vol. iii, 1904, and vol. v, 1906.

The Christ's Hospital series was one I measured myself, and was dug up close to the site of the old Blue Coat School. It was in a disused grave-yard, and, among other remains, contained those of many prisoners who died in Newgate. From the way the bodies were buried I have little doubt that part at least of it had been used as a plague pit during the great plague.



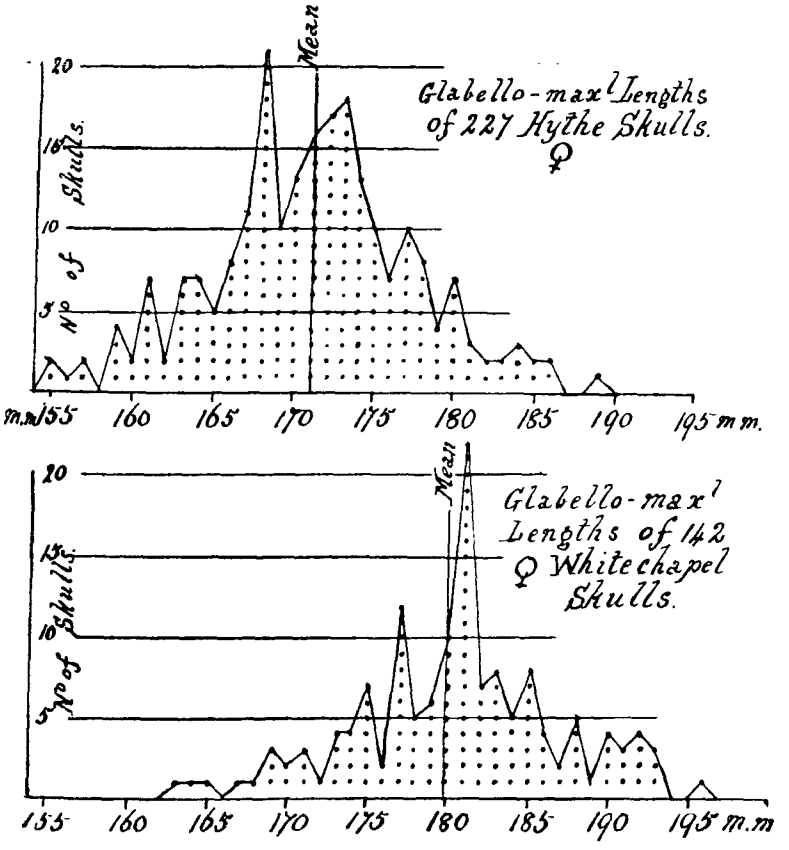
CURVE No. 1.

The St. Thomas's Hospital and Women's School measurements were made by me in 1907–08 on my own students in these medical schools, and the figures were gained by subtracting 11 mm. from the living measurements.

The Dover skulls were part of a large collection removed from the site of St. Peter's Church in Dover during some recent excavations. For the chance of seeing these I am indebted to the kindness of Canon Bartram. They are probably

about the same date as the Hythe skulls, but, owing to the crypt having been filled in with moist earth, very few were available for measurement.

The Upchurch skulls are in the crypt of the church there, not far from Rochester, and here again I am indebted to the kindness of the vicar. Indeed I should like to take this opportunity of acknowledging the unfailing kindness and help I have received from the many clergymen I have come across in the course of my various investigations. To the Reverend H. Dale of Hythe and the vicars of Christ Church and St. Sepulchre's in the City, I am especially indebted. I have been surprised and delighted at the extent of these gentlemen's knowledge of the unwritten history of their parishes, and only regret that space does not allow me to set down all I have learnt from them.



CURVE No. 2.

The other series of skulls in the tables are taken from Dr. Macdonell's great works on the Whitechapel and Moorfields skulls already quoted. I have, however, taken the liberty of reducing the measurements to the nearest millimetre, since I feel that, so long as the determination of sex remains so uncertain, little is gained by working them out to several places of decimals. Indeed my absence of mathematical training would have made this very laborious in my own series.

The accompanying curves (1 and 2), contrasting the grouping of these skull lengths in the Hythe and Whitechapel series show that the Hythe skulls are in every

way as homogeneous a series as are those from Whitechapel, and that in neither group is there any appreciable mixture of types. The contrast between these two groups is worth making because, as far as we know, they represent the extremes of English skull lengths as demonstrated by large and homogeneous collections. It seems to me possible that Dr. Macdonell tends to err on the side of making too many doubtful skulls female, while my own tendency to error is in the opposite direction, but it is extremely unlikely that, if each of us determined the sexes of the other's collection, independently and anew, the means would approach one another by more than 1 mm.

TABLE 2.—BREADTH.

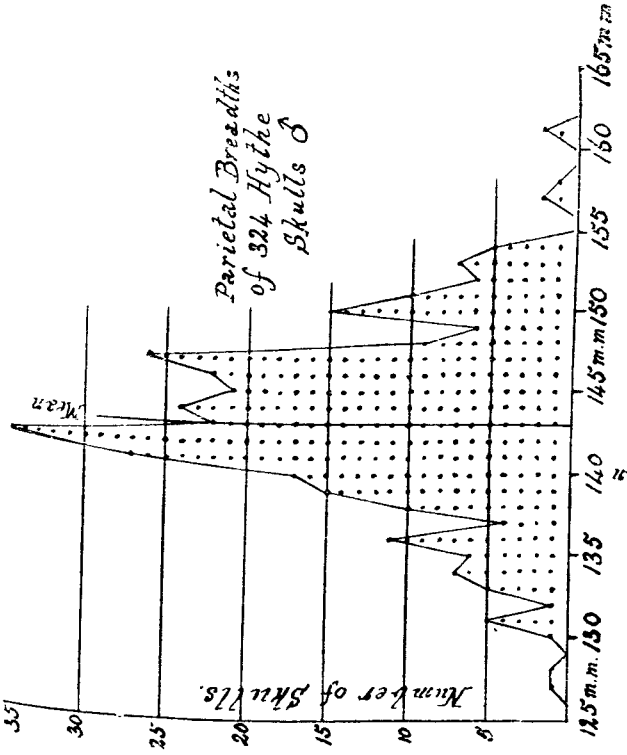
—	Males.				Females.			
	Greatest parietal.		Least frontal.		Greatest parietal.		Least frontal.	
	No.	Breadth.	No.	Breadth.	No.	Breadth.	No.	Breadth.
		cm.		cm.		cm.		cm.
Hythe	324	14·3	318	9·9	230	14·0	228	9·6
Whitechapel ...	135	14·1	132	9·8	140	13·5	147	9·3
Moorfields	46	14·3	47	9·85	62	13·8	64	9·5
Christ's Hospital ...	61	13·9	—	—	23	13·4	—	—
Cambridge Undergraduates ...	1,000	14·3	—	—	—	—	—	—
[1]St. Thomas's Hospital Students ...	97	14·1	92	9·8	—	—	—	—
[1]Women's Medical School Students	—	—	—	—	50	13·7	50	9·7
Bedford College Students... ...	—	—	—	—	small series	13·6	—	—
British Association	?	14·4	—	—	?	13·7	—	—
English criminals ...	3,000	13·9	—	—	—	—	—	—
Upchurch	16	14·4	—	—	5	13·5	—	—
Dover	12	14·3	—	—	—	—	—	—
Bavarian	100	15·0	72	10·4	100	14·4	83	9·6
Würtemberg ...	96	14·8	98	9·7	19	14·3	19	9·4
French soldiers ...	56	14·3	56	9·6	—	—	—	—
Long Barrow ...	18	14·2	16	9·9	12	13·9	11	9·4

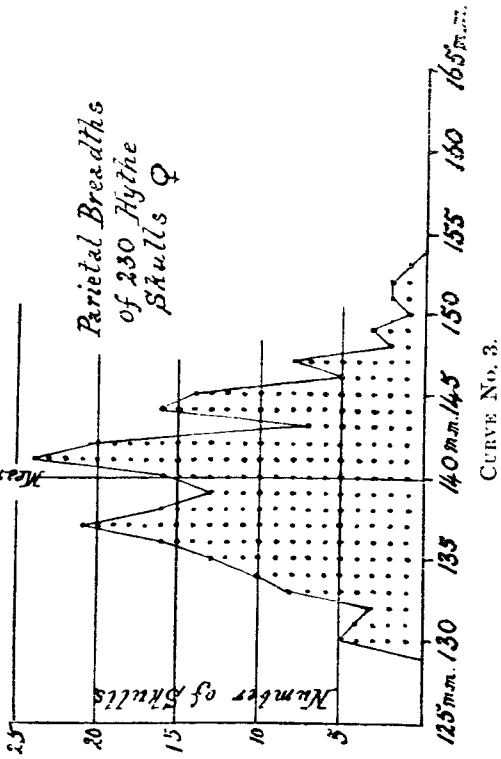
It will be seen from this table that the parietal and frontal breadths of the Hythe skulls are well developed, but not exceptionally so, while the accompanying curve shows the homogeneous nature of the group and the range of variation. (Curve 3.)

Table 3 shows that the Hythe skulls are of considerable height, indeed, their basibregmatic height is only surpassed by the Bavarian and Long Barrow skulls. This applies both to the male and females. Their homogeneity and range of variation is shown in the accompanying curve. (Curve 4.)

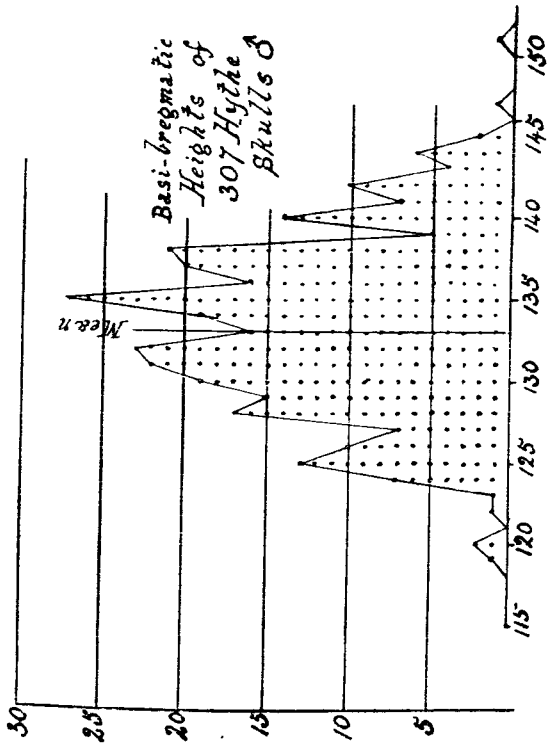
The relation between the auricular and basibregmatic heights may, I think, prove a point of considerable classificatory importance as our supply of material increases. In the male Hythe skulls the auricular height averages 13 mm. less than the basibregmatic, while in the females it is only 12 mm. less.

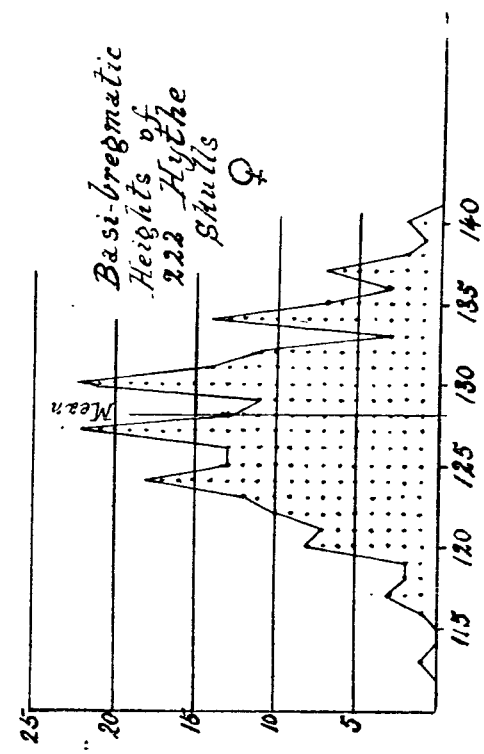
[1] In arriving at these measurements I deducted 11 mm. in the parietal breadth, but experience in the Dissecting Room showed me that 6 mm. was ample to deduct from the living frontal breadth.





CURVE No. 3.





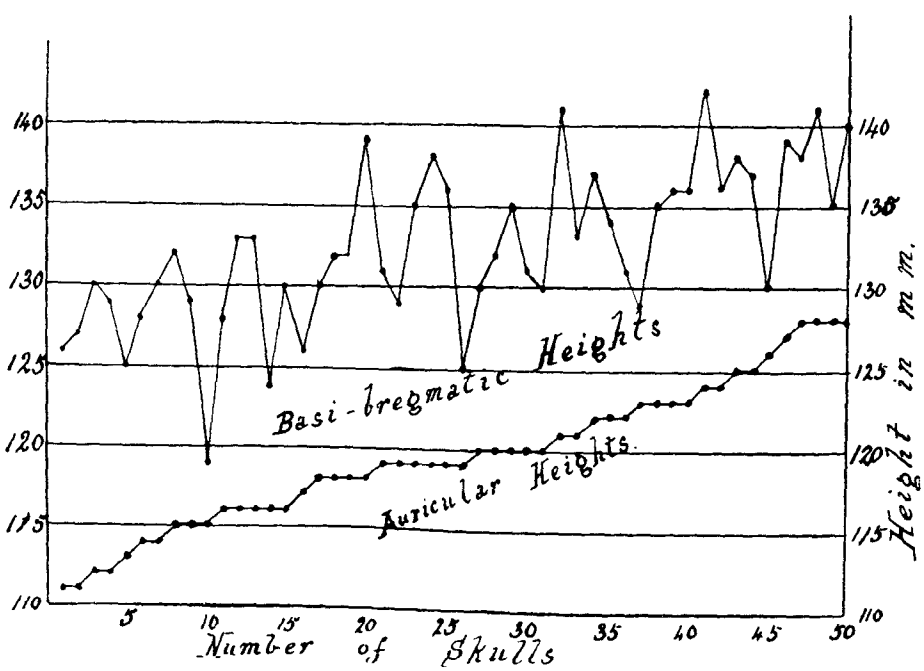
CURVE No. 4.

TABLE 3.—HEIGHT.

—	Males.				Females.			
	Basi-bregmatic.		Auricular.		Basi-bregmatic.		Auricular.	
	No.	Height.	No.	Height.	No.	Height.	No.	Height.
		cm.		cm.		cm.		cm.
Hythe	307	13·3	294	12·0	222	12·8	215	11·6
Whitechapel ...	122	13·2	135	11·5	124	12·5	143	10·9
Moorfields	34	13·0	46	11·4	47	12·4	59	10·9
St. Thomas's Hospital Students ...	—	—	53	12·1	—	—	—	—
Women's Medical School Students...	—	—	—	—	—	—	25	11·7
Upchurch	13	13·2	—	—	Very few skulls available		—	—
Dover	12	13·0	—	—			—	—
Bavarian	99	13·4	100	12·1	96	12·8	100	11·4
Würtemberg ...	93	13·1	94	11·5	19	12·6	19	11·2
French soldiers ...	56	13·1	56	11·3	—	—	—	—
Long Barrow ...	12	13·8	9	12·1	9	13·5	3	11·8

This, it will be noticed, is the same amount as is present in the male Bavarian skulls, but is lower than that of every other series put in the tables for comparison.

The accompanying curve shows the auricular and basi-bregmatic heights of fifty skulls taken at random from the male series, and indicates how very wide the range of variation is from the mean 13 mm. (Curve 5.)



CURVE No. 5.

Sometimes there is only 4 mm. difference between the two heights; at others as much as 21 mm. Indeed, among the female skulls in the collection there are three in which the basi-bregmatic height is only 1 mm. more than the auricular.

This variability would make the auricular height a most uncertain factor in estimating the actual height of skulls when a very small series is being dealt with, but when consecutive series of ten skulls are taken, the liability of variation is reduced to about 1 mm. each way, while if series of twenty are dealt with, it for all practical purposes disappears.

Indices.

The breadth and height indices vary of course with the particular length which is chosen for comparison. It does not make very much difference whether the ophryo-maximal or glabello-maximal is used, but it may, and in the case of the male Hythe skulls does, make all the difference as to whether they fall into the brachycephalic or mesaticephalic classes. I have, therefore, in the following tables placed both calculations side by side wherever both lengths are available, since I do not know whether there is any authoritative decision as to which should be used in classifying skulls according to their indices.

Table 4.—Indices.

	Males.					Females.				
	Breadth.			Height.		Breadth.			Height.	
	O.M.L.	G.M.L.	F.P.	O.M.L.	G.M.L.	O.M.L.	G.M.L.	F.P.	O.M.L.	G.M.L.
Hythe	808	799	692	751	743	819	819	686	749	749
Whitechapel	754	743	695	706	698	750	750	689	694	694
Moorfields	765	756	688	695	688	758	754	688	681	678
Christ's Hospital	760	—	—	—	—	—	—	—	—	—
St. Thomas' Hospital Students ...	779	—	695	—	—	—	—	—	—	—
Women's Medical School Students	—	—	—	—	—	783	—	708	—	—
Bedford College Students	—	—	—	—	—	—	760	—	—	—
Cambridge Undergraduates ...	—	783	—	—	—	—	—	—	—	—
British Association	—	770	—	—	—	—	783	—	—	—
English criminals	—	772	—	—	—	—	—	—	—	—
Upchurch	791	—	—	725	—	758	—	—	—	—
Dover	781	—	—	710	—	—	—	—	—	—
Bavarian	—	832	693	—	740	—	832	666	—	740
Würtemberg	—	824	655	—	732	—	827	657	—	728
French soldiers	—	798	671	—	728	—	—	—	—	—
Long Barrow...	759	743	697	738	723	755	760	676	734	738

Of the letters which head the columns, O.M.L. signifies an index taken with the ophryo-maximal length, G.M.L. one with the glabello-maximal, while F.P. is the fronto-parietal breadth index. The higher this index is the greater is the forehead breadth in comparison with that of the parietal region. In both the Hythe and Whitechapel series this index is six lower in the females than in the males, while in the Bavarian it is as much as twenty-seven lower. In the Women

Medical Students it is very high, which is worth noting when it is remembered that these are women of more than average intellect and mental training.

Capacity.

I have only at present taken the capacity of eight skulls, four male and four female, for the purpose of testing the various methods of estimating the capacity from the measurements.[1] I find that Pearson and Lee's formula,

G.M. length × breadth × auricular height × ·000337 + 406

for male skulls, and

G.M. length × breadth × auricular height × ·000400 + 206

for females, gives the best results except in one particular skull which was scaphocephalic. The results were much closer to the actual capacity, taken by shot, in the males than in the females.

Using Pearson and Lee's method on the average measurements of all the Hythe skulls already recorded, it would give the male skulls an average capacity of 1,441 c.c. and the females of 1,206 c.c. I fancy this is rather too low an estimate for the females, but in any case it is certain that these skulls are rather below the average of those of modern English people, just as the stature of their possessors was below that of modern middle-class Englishmen. I quite admit that more extended series of actual measurements of capacity are needed, but as things are it is very difficult to make them.

Skull Shape.

Every variety of skull shape may be found in the collection, but the most striking character is the number of skulls which have a steep, almost vertical, hinder end. The transition from the upper to the posterior surfaces is, therefore, comparatively sudden. The female skull (Plate XXXV, Figs. 1–3) gives a fair though not marked example of this. Bulging of the occipital bone is often coincident with this. The flattening of the posterior aspect, when it is very marked, gives the upper surface of the skull a sphenoid appearance, *i.e.*, a quadrilateral with a narrow surface anteriorly and a broad one posteriorly.

Comparison with St. Nicholas Skulls.

Having considered the different measurements of the skulls found in the vault of St. Leonard's church, it will be possible to compare them with those of the skulls dug up a few years ago in making a new revolver range at the School of Musketry and on the site of the old church of St. Nicholas. There is really very little doubt that these skulls were buried during the first half of the fourteenth century or earlier, since after 1365 the church was no longer used.

Two of these skulls are female and one male; they are considerably more decayed than the others, but this is easily explained by their having been in the ground during the three and a half centuries in which the St. Leonard's bones have probably been in the vault.

[1] The methods tried were those mentioned by Dr. Beddoe in his paper published in *Journ. Anthrop. Inst.*, vol. xxxiv, p. 266.

TABLE 5.

	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.
MALES.						
Average measurements of St. Leonard's series ...	177	179	143	99	133	120
St. Nicholas' ♂ skull	172	175	151 ?	106	143	127
FEMALES.						
Average measurements of St. Leonard's series ...	171	171	140	96	128	116
St. Nicholas ♀ skull, α ...	167	166	146	97	128	119
" " β ...	167 ?	167 ?	147	89	120 ?	116

From the above it will be evident that the chief characteristic of the Hythe skulls, their shortness, is very marked in these.

VARIATIONS IN SUTURES, FORM, ETC.

Bathrocephaly.

A marked bulging in the occipital region occurs in 51 of the 590 skulls, *i.e.*, in 8·6 per cent. It is, relatively, more frequent in males than in females, and in nearly two-thirds of the cases in which it occurs is associated with numerous wormian bones in the lambdoid suture. Dr. Macdonell found it in 5·2 per cent. of his Whitechapel skulls and in 11·6 per cent. of the Moorfields series. It is a little interesting to notice that the ophryo-maximal length of the male bathrocephalic skulls is 18·1 cm. against 17·7 cm., which is the average for the whole male Hythe series, while in the female skulls the bathrocephalic work out at 17·3 cm. against the total average of 17·1 cm.

It is evident, however, that this variation is as likely to occur in a series of short English skulls as in a series of long ones.

Scaphocephaly.

This abnormality is singularly common in the Hythe skulls, occurring in about 6·5 per cent. of them. It is, proportionally, nearly twice as common in males as in females, and does not seem to be affected by the skull being over or under forty years of age.

I have not been able to associate this condition with premature closure of the sagittal suture, though, in several cases, it co-exists with a persistent metopic suture, and then is usually more marked in the frontal region.

From a careful observation of these scaphocephalic and bathrocephalic skulls I cannot help feeling a suspicion that the condition may be accentuated by, if it is

not due to, postmortem pressure, especially when skulls are stacked in heaps. Vertical pressure would accentuate bathrocephaly while lateral pressure, when the skull is on its side, might increase scaphocephaly by pressing the lower ends of the parietals toward one another. I cannot find, however, that the scaphocephalic skulls are markedly narrower than the others, while in one or two cases, though very rarely, the two abnormalities co-exist, so that, at present, I have no proof whatever of my suspicion.

Plagiocephaly.

Plagiocephaly was found in eight cases: three males, four females and one child. In three of these its occurrence could be traced to early closure of one-half of the coronal suture, in all cases the left half. In the other examples the sutures were either not closed at all, as in the child, or all closed.

Metopism.

Altogether there are fifty-two cases of unclosed or partly closed metopic sutures in the 590 skulls—practically 9 per cent. The percentage does not appreciably differ in the two sexes.

Under twenty years of age the percentage is 20·8. Between twenty and forty it is 9·8 per cent., while over forty it is only found in 6·4 per cent.

Dr. Macdonell calls attention to the fact that the late closure of this suture allows the frontal region of the skull to broaden. I have gone into this and find that he is perfectly right, because the average frontal breadth of the metopic skulls, excluding the children, is 10·4 cm., while the average adult frontal breadth of the two sexes is 9·8 cm. There is, therefore, an average gain of 6 mm. in metopic skulls of this series, against 2 to 3 mm. in the Whitechapel series. The metopic skulls have also an average increase of 1·3 mm. in the greatest parietal breadth.

I have twice found the suture co-existing with marked post coronal depression though this is probably only a coincidence.

Mastoid Suture.

The suture on the external surface of the mastoid process, caused by the overlapping of a scale-like plate of the squamous part of the temporal bone, was seen as a perfectly evident structure in about 9 per cent. of these skulls. It is difficult, however, to give a definite percentage, since, when once the eye has become used to looking for it, traces can be found very much oftener, indeed, in nearly half the skulls examined.

Post Coronal Depression.

I only found six well marked cases of this among the 590 skulls, and am sure that, in any case, it is not nearly so common as among the London crania recorded by Macdonell: just as in his skulls the abnormality was most frequent in women, there being four female to two male instances of it.

Pterion and Epipteric Ossicle.

In those cases in which no ossicle existed the parietal bone always articulated with the alisphenoid. In all the 590 skulls I saw no example of the temporal articulating with the frontal. In one case only did the four bones meet in one point, and that was on the right side.

Fifty-five skulls out of the 590 have pterionic ossicles or epipteric bones on one or both sides (9·3 per cent.). Of these, 28 had a bone on the right side only, 11 on the left side only, while in 16 there was one on each side. It is remarkable that the proportion of epipteric bones is, in this collection, more than twice as great in females as it is in males.

I regard this marked preference of the epipteric bone for the right side and female sex as more than a mere chance, and believe that it is worth while seeking an explanation.

Occasionally, more than one epipteric bone may be present. I met with one case of three on the right side and another of three on the left. The distribution of these bones may be tabulated in the following way :—

TABLE 6 (FREQUENCE OF EPIPTERIC BONES).

	Males.	Females.	Children.	Total.
Right	9	19	—	28
Left	6	5	—	11
Both sides ...	6	9	1	16
	21	33	1	55

Asterion Ossicle.

This ossicle, sometimes known as the bone of the lateral fontanelle, is found at the posterior inferior angle of the parietal bone and is not nearly so common as the epipteric. I only saw it in 20 out of the 590 skulls (3·4 per cent.). Like the epipteric bone it was nearly twice as common, proportionally, in females as in males, and was also rather more common on the right than on the left side, though, as it was usually bilateral, this was not so apparent as in the former bone.

TABLE 7 (FREQUENCE OF ASTERION OSSICLE).

	Males.	Females.	Children.	Total.
Right	2	4	0	6
Left	1	0	0	1
Both sides ...	6	7	0	13
	9	11	0	20

Bregmatic Ossicle.

The bregmatic ossicle (*os bregmæ, os antiepilepticum,* interfrontal bone) was found six times, three times in each sex. It was, therefore, present in about 1 per cent., which is about the same frequency as in the Whitechapel skulls though less than in those of the Moorfield series, where it was found in nearly 3 per cent. Taking the three series it may be said, provisionally, to be present once in about 75 English skulls.

The Supra-occipital Region.

The possible subdivisions of the supra-occipital bone are very numerous and no account which I have come across is sufficient to classify all the changes which are rung in this collection. The best account of the various ossicles which I have seen is that by Professor Hepburn of Cardiff (*J. Anat. and Phys.*, Vol. 42, p. 88), and my thanks are due to him for specially directing my attention to this region.

As he points out, the occipito-interparietal suture which sometimes divides the membranous from the cartilaginous part of the supra-occipital is above the superior curved line, sometimes by more than half an inch, but it always seems to start laterally from the asterion.

Remains of this suture are sometimes found, and are usually symmetrical. They run for an inch or two toward the mid-line.

That part of the supra-occipital bone which is above this occipito-interparietal suture, that is to say, the interparietal bone, may be divided by sutures into a median *os pentagonale* and two lateral *ossa triangularia.* These have been excellently demonstrated in the photographs of some of Macdonell's Moorfields and Whitechapel crania, and are marked O.P. and O.T., respectively, in his accompany ingdiagram. The sutures between any of these may be obliterated or any one or two of them may be united with the cartilaginous part of the supra-occipital below.

The apex of the supra-occipital bone may be separate and so may form a lambdoid ossicle (L.O.). This varies very greatly in size, but never, as far as I have seen, encroaches on the area of the *ossa triangularia.* It, in its turn, may be divided into right and left halves, though not always symmetrically; or it may be divided transversely into anterior and posterior parts. To still further complicate the matter the *os pentagonale* may be divided into lateral halves, of which only one may remain separate.

In one case a small wormian bone was found in the posterior part of the sagittal suture, quite distinct from the various occipital elements, but likely to be mistaken for one of them. This may be a purely fortuitous occurrence, but if it occurs again, it might be convenient to speak of it as the post sagittal ossicle.

The possible combinations of these various bones may be very numerous, bu practically I met with thirteen among the Hythe skulls.

They are as follows:—

1. Complete interparietal bone (composed of the fused *os pentagonale*, *ossa triangularia* and lambdoid ossicle). 1 ♀.
2. *Os pentagonale* alone separate. 3 (2 ♂ 1 child).
3. *Os pentagonale* and one *os triangulare* separate. 1 ♂ (L. side).
4. Lateral half of *os pentagonale* alone separate. 1 ♀ (L. ½).
5. Symmetrical *ossa triangularia* alone separate. 3 ♂.
6. Right *os triangulare* alone separate. 2 (1 ♂ 1 ♀).
7. Left *os triangulare* alone separate. 2 ♂.
8. Lateral remnants of parieto—interparietal suture. 4 (3 ♂ 1 ♀).
9. Lambdoid ossicle alone separate. 13 (11 ♂ 1 ♀ 1 child).
10. Bilateral lambdoid ossicles. 2 ♀.
11. Lateral half of lambdoid ossicle alone separate. 1 ♂ (R. ½).
12. Lambdoid ossicle divided transversely into anterior and posterior parts. 1 ♂.
13. Post sagittal ossicle. 1 ♀.

Odontoid Facet.

A facet in the anterior margin of the *foramen magnum*, for articulation with the odontoid process of the axis, was found six times, four being males and two females.

Paroccipital Process.

Paroccipital processes were only seen twice. In one case, a male, they were bilateral, while in the other, a female, the process was only present on the left side. In neither case were they long enough to articulate with the transverse process of the atlas.

Conclusions.

The evidence at my disposal leaves me little doubt that this series of skulls belonged to Kentish men, most of whom lived in the fourteenth and fifteenth centuries; that the skulls and other bones were exhumed, according to the mediæval custom, and stacked in the vault or processional way. They are skulls remarkable for their shortness, though of good breadth and height, and in many of them the occiput is nearly vertical. They more closely resemble the Bavarian, or a combination of the Bavarian and Würtemberg skulls, the measurements of which are given for comparison, than they do the Whitechapel or Moorfields crania. They entirely fail to substantiate the theory which Dr. Macdonell advances that, during the last two or three centuries, a marked change has been going on in the shape of English skulls; that their length has been decreasing while their breadth has increased.

As far as we know, neither Dr. Macdonell nor I have any right to assume that our series are representative of English skulls as a whole. He has shown most

successfully what the skull of the seventeenth century Londoner was like. I have tried to show what the East Kent man's skull was like a couple of centuries earlier.

Neither of us has done anything more. We are still in ignorance of the skull shapes of other parts of England in the past, and, until we can get some more long series of measurements taken by people with some experience, we had much better realize this fact.

MALES.

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
1	4	168	171	143	100	140	122	851	833	
2	5	179	179	150?	97	131	—	838	732	Metopic. Small lambdoid ossicle.
3	6	175	176	136	90	133	117	775	760	Slightly bathrocephalic with wormian bones.
4	14	168	171	140	101	126	117	833	750	Scaphocephalic.
5	15	177	177	144	100	134	118	814	757	Metopic.
6	18	175	178	135	98	125	112	771	714	Asterion ossicle on right side.
7	36	170	172	144	102	129	118	847	759	
8	45	177	175	153	104	144	129	864	814	Symmetrical *ossa triangularia* in occipital.
9	49	177	180	147	107	144	127	831	814	Epipteric bone on right side. Some bathrocephaly without wormian bones.
10	60	170	170	141	100	124	118	799	729	
11	61	183	184	139	95	141	125	760	770	Scaphocephalic. Bathrocephalic. Lambdoid ossicle.
12	83	172	171	150	98	127	120	872	738	Epipteric bone on left side.
13	100	167	170	142	94	125	112	850	749	
?14	101	171	170	142	93	135	125	830	789	
15	102	166	167	151	98	133	125	910	801	
16	104	187	185	154	109	—	—	824	—	Metopic. *Os pentagonale* in occipital.
17	112	180	183	142	95	128	112	789	711	Scaphocephalic.
18	113	170	172	141	100	138	122	829	812	
19	114	181	180	149	103	138	129	823	762	
20	120	172	172	144	98	135	123	837	785	
21	132	182	183	140	99	126	116	769	692	Metopic. Depression just behind bregma. Palatine torus.
22	155	183	183	144	98	135	122	787	738	Bathrocephalic with wormian bones.
23	161	180	180	131	95	131	120	728	728	Scaphocephalic.
?24	171	172	171	143	98	140	120	831	814	
25	173	169	172	143	104	128	120	846	757	
26	175	181	181	145	94	137	123	801	757	Bathrocephalic without wormian bones. Epipteric bone on right side.
27	178	183	183	142	93	129	119	776	705	
28	188	187	188	141	92	137	119	754	733	Scaphocephalic.
29	189	185	187	150	97	135	—	811	730	Metopic. Small lambdoid ossicle.
30	192	184	185	143	100	139	119	777	755	
31	197	177	179	134	94	127	114	757	718	Markedly scaphocephalic. Epipteric bone on left side.
32	207	176	179	143	99	140	122	813	795	
33	209	179	183	147	101	133	126	821	743	
34	210	174	176	138	98	129	—	793	741	
35	214	166	167	139	98	132	115?	837	795	

MALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
36	215	195	197	146	95	130	121	749	667	
37	217	168	169	147	100	133	123	875	792	Epipteric bone on right side.
38	221	183	183	138	97	132	119	754	721	
39	223	173	177	139	102	145	126	803	838	Scaphocephalic.
40	225	177	178	139	96	132	125	785	746	Epipteric bone on left side.
41	226	167	170	127	95	128	111	760	766	Scaphocephalic.
42	227	172	176	134	87	124	108	779	721	
43	233	181	182	140	103	135	117	773	746	
44	237	170	171	143	93	129	118	841	759	
45	238	178	182	145	92	134	—	815	753	
46	244	192	195	147	106	144	125	766	750	Plagiocephalic without closure of coronal suture.
47	252	190	190	151	—	142	130	795	747	Bathrocephalic with wormian bones.
48	254	189	188	141	105	129	121	746	683	
49	256	181	184	140	97	128	111	773	707	
50	263	173	172	145	95	136	118	838	786	Bathrocephalic. Large *os triangulare* on left side.
51	264	179	181	140	102	137	122	782	765	
52	269	164	163	133	93	130	112	811	793	
53	270	179	179	152	107	134	122	849	749	Metopic.
54	271	181	181	144	100	128	116	796	707	
55	273	164	164	137	97	125	113	835	762	
56	275	179	182	142	99	131	119	793	732	
57	277	171	170	150	95	129	123	877	754	
58	283	181	185	145	98	142	124	801	785	
59	288	178	179	147	102	133	116	826	747	
60	292	171	173	131	93	126	111	766	737	Half lambdoid ossicle on right side of lambda.
61	294	176	179	142	99	128	114	807	727	Bathrocephalic.
62	297	172	172	133	95	130	114	773	756	
63	301	178	178	142	101	139	127	798	781	
64	305	176	178	138	97	133	116	784	756	
65	308	183	184	150	104	135	123	820	738	
66	320	176	176	148	100	138	128	841	784	Slightly scaphocephalic. Epipteric bone on each side.
67	321	170	171	138	102	130	118	812	765	
68	329	173	172	144	97	132	118	832	763	Asterion ossicle on each side. Palatine torus.
69	340	183	185	148	102	138	125	809	754	
70	342	176	178	131	97	129	112	744	733	Bathrocephalic without wormian bones.
71	345	178	178	143	94	130	120	803	730	
72	346	179	179	148	100	137	125	827	765	Slightly bathrocephalic. Asterion ossicle on each side.
73	347	181	182	143	99	129	119	790	713	
74	358	175	176	148	87	132	120	846	754	
75	363	177	177	139	104	135	119	785	763	
76	368	178	181	139	102	138	119	781	775	
77	372	189	189	141	102	131	122	746	693	
78	386	160	160	140	95	124	116	875	775	
79	387	167	166	138	96	135	120	826	808	Slight palatine torus. Epipteric bone on right side. Paroccipital process on each side.
80	388	173	173	150	99	130	126	867	751	Slight plagiocephaly without obliteration of sutures.
81	389	173	174	145	95	131	120	838	757	Epipteric bone on left side.
82	392	170	173	138	99	136	119	812	800	Odontoid facet. Palatine torus.

MALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
83	395	176	176	136	98	132	118	773	750	Metopic. Scaphocephalic.
84	397	181	181	150	102	130	120	829	718	*Os pentagonale* and left *os triangulare.*
85	400	169	172	140	97	132	115	828	781	*Os bregmæ.* Bathrocephaly with wormian bones.
86	405	179	178	149	104	141	128	832	788	Epipteric bone on each side.
87	406	171	174	142	97	141	121	830	825	Pterion comes to a point on right side.
88	413	173	173	148	102	133	121	855	769	Metopic.
89	415	177	177	148	97	136	123	836	768	
90	416	179	181	140?	98	125	119	782	698	Metopic.
91	423	187	188	145	108	135	128	775	722	Bathrocephaly with wormian bones.
92	426	188	188	142	95	139	118	755	739	Asterion ossicle each side.
93	427	186	185	145	105	141	128	780	758	Asterion ossicle left side. Small lambdoid ossicle.
94	433	174	176	141	96	136	123	810	782	
95	437	168	169	143	91	126	117	851	750	
96	439	182	184	144?	104	129	115	791	709	Epipteric bone on left side.
97	441	173	173	145	100	136	124	838	786	Depression behind bregma.
98	442	173	178	142	98	130	116	821	751	
99	452	173	175	145	95	119	115	838	688	Bathrocephaly with wormian bones. Left *os triangulare.*
100	453	170	171	131	97	127	111	771	747	Scaphocephalic.
101	591	173	177	151	107	140	122	873	809	
102	454	164	166	142	101	125	116	866	762	
103	455	173	175	131	101	131	116	757	757	
104	461	168	167	141	104	129	120	839	768	
105	471	171	173	134	97	132	111	784	772	Lambdoid ossicle.
?106	475	168	168	143	92	122	116	851	726	
107	478	173	177	133	89	133	118	769	769	Bathrocepalic with wormian bones and lambdoid ossicle.
108	484	169	173	136	95	132	116	805	781	
109	485	185	186	137	96	125	117	741	676	Scaphocephalic. Epipteric bone on right side.
110	487	179	180	133	95	124	112	743	693	
111	496	166	168	146	102	129	115	880	777	Asterion ossicle each side. Interparietal suture near asterion each side.
112	503	178	179	140	95	131	119	787	736	Bathrocephaly without wormian bones.
113	510	175	178	133	93	125	113	760	714	
114	521	180	183	144	103	135	116	800	750	
115	525	186	185	161	107	—	—	866	—	Metopic. Epipteric bone on right. *Os triangulare* on right.
116	544	166	171	140	94	128	119	843	771	Odontoid facet.
117	548	171	172	147	101	134	117	860	784	
118	555	182	183	140	95	126	—	769	692	Scaphocephalic. Epipteric bone left.
?119	559	173	171	150	102	134	—	867	775	Vestige of interparietal suture near asterion on each side.
120	565	172	174	142	95	137	—	826	797	Two lambdoid ossicles (antero-posterior).
121	568	185	183	147	94	—	—	795	—	Bathrocephalic with lambdoid ossicle and other wormian bones in lambdoid suture.
122	575	167	172	146	98	130	116	874	778	
123	576	171	171	146	100	132	118	854	772	

MALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
124	578	175	—	154	—	137	1[illegible]	880	783	
125	589	184	184	158	108	151	136	859	821	
126	7	181	182	138	100	131	117	762	724	Metopic.
127	9	186	186	147	104	—	—	790	—	
128	12	176	178	136	92	139	125	773	790	Odontoid facet. Slightly scaphocephalic.
129	13	182	186	147	103	125?	121	808	687?	
130	16	182	184	147	97	—	118	808	—	
131	17	180	181	140	96	129	119	778	717	
132	19	178	182	151	102	—	—	848	—	
133	22	179	180	147	96	138	—	821	771	
134	23	185	184	157	109	138	120	849	746	Metopic.
135	27	175	177	141	97	135	120	806	771	
136	28	182	183	151	—	132	123	830	725	
137	29	170	173	144	98	137	123	847	806	
138	30	175	179	144	103	137	120	823	783	
139	32	190	192	146	—	135	—	768	711	Metopic suture open externally above.
140	35	181	181	139	103	138	123	768	762	Slightly bathrocephalic without wormian bones.
141	37	182	184	145	—	144	120	797	791	Scaphocephalic.
142	38	172	173	143	—	135	123	831	785	
143	41	187	189	143	107	143	130	765	765	Slightly bathrocephalic with wormian bones.
?144	42	180	178	147	107	132	124	817	733	
145	43	175	175	151	103	134	121	863	766	
146	46	182	182	154	103	136	128	846	747	
147	48	190	192	147	95	135	122	774	711	
148	50	167	169	147	101	136	123	880	814	
149	51	184	187	144	103	142	123	783	772	Bathrocephalic with wormian bones.
150	53	184	188	147	107	142	128	803	776	
151	55	173	173	147	101	138	125	850	798	
152	56	190	192	144	99	134	121	758	705	Symmetrical *ossa triangularia* in occipital region.
153	57	179	179	146	106	147	127	816	821	
154	58	185	187	148	105	140	126	800	757	
?155	59	179	177	143	107	138	122	799	771	
156	63	167	170	145	97	142	126	868	850	
157	66	165	171	153	101	135	123	927	818	Epipteric bone on right side.
158	67	176	178	149	101	—	120	847	—	Bathrocepalic with wormian bones.
159	69	178	180	136	97	130	117	764	730	
160	70	180	181	146	104	137	118	811	761	
161	72	179	183	142	91	—	—	793	—	
162	75	172	172	145	96	127	115	843	738	Metopic suture open externally.
163	76	175	174	141	102	124	117	806	709	Metopic suture but also open internally below.
164	77	175	176	151	105	124	125	863	709	Metopic suture open externally.
165	81	177	181	143	98	134	121	808	757	Scaphocephalic.
166	82	173	174	141	104	132	115	815	763	Scaphocephalic. Metopic suture open externally.
167	86	173	174	134	92	135	116	775	780	Diamond-shaped *os pentagonale.*
168	90	183	182	151	112	138	128	825	754	Scaphocephalic.
169	91	180	183	146	105	143	124	811	794	
170	93	177	179	144	100	130	116	814	734	Bathrocephalic with wormian bones.
171	94	192	192	143	100	142	126	745	740	Bathrocephalic with wormian bones. Scaphocephalic.
172	95	170	172	149	102	130	121	876	765	

MALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
173	96	177	178	147	99	132	119	831	746	Bathrocephalic.
174	97	192	194	148	100	128	122	771	667	
175	98	190	192	141	104	—	122	742	—	
176	99	183	185	142	97	140	119	776	765	
? 177	103	179	178	143	102	125	110	799	698	Metopic.
178	105	185	188	153	101	135	119	827	719	Traces of metopic suture externally.
179	106	172	173	161	111	138	129	936	802	
180	109	187	192	141	93	126	109	754	674	
181	111	163	166	142	99	127	116	871	779	
182	121	184	184	149	106	137	124	810	745	
183	122	164	169	142	107	131	—	866	799	
184	125	174	177	151	94	126	119	868	724	
185	128	176	178	145	96	134	120	824	761	Bathrocephalic with wormian bones.
186	134	179	180	147	105	137	125	821	765	Bathrocephalic with wormian bones.
187	138	188	189	141	99	134	119	750	713	
188	140	183	187	136	98	134	118	743	732	
189	158	180	181	135	96	125	122	750	694	Epipteric bone on right side.
190	160	174	175	136	98	143	124	782	822	
191	163	190	191	141	101	128	126	742	674	Bathrocephalic.
192	165	170	170	150	101	136	127	882	800	Epipteric bone on each side.
193	166	176	177	141	95	137	122	801	778	
194	168	177	178	147	101	135	121	831	763	
195	172	180	181	143	98	135	123	794	750	Scaphocephalic.
196	174	174	177	145	103	142	—	833	816	
197	179	178	176	146	94	135	125	820	755	
198	182	182	184	141	99	138	125	775	758	Epipteric bone on each side.
199	183	185	189	147	101	134	123	795	724	
200	185	185	186	147	103	136	123	795	735	
201	190	175	176	150 ?	106	133 ?	120	857 ?	760 ?	Metopic suture open externally.
202	201	171	171	141	98	140	120	825	819	
203	201A	177	178	143	107	138	121	808	780	Epipteric bone each side. Small lambdoid ossicle.
204	203	178	183	144	103	127	119	809	713	
205	204	176	178	144	105	138	125	818	784	Scaphocephalic.
206	218	185	185	146	108	142	128	789	768	
207	222	187	189	147	97	133	124	786	711	
208	224	171	173	153	105	136	127	895	795	
209	228	170	172	142	98	133	116	835	782	Trace of interparietal suture near asterion.
210	229	176	177	143	101	139	126	813	790	
211	231	183	185	141	98	134	117	770	732	
212	234	173	177	128	92	135	120	740	780	
213	236	180	179	146	103	136	122	811	756	Metopic suture open in upper half externally, in upper quarter internally. *Os bregmæ.* Right ossicle of asterion.
214	239	173	178	146	100	133	123	844	769	Metopic suture open in lower half externally.
215	240	178	177	144	96	137	123	809	770	
216	241	173	176	137	98	134	121	792	775	
217	242	179	183	145	105	138	122	810	771	
218	243	181	183	141	101	140	123	779	773	Slightly bathrocephalic with wormian bones.
219	245	181	184	—	102	132	—	—	729	
? 220	246	169	169	143	97	130	119	846	769	
221	247	172	177	144	101	136	127	837	791	

MALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
222	248	173	177	—	108	142	—	—	821	
223	249	180	180	150	103	143	132	833	794	
224	250	191	194	142	96	140	131	743	733	Bathrocephalic without wormian bones.
225	251	184	186	157	107	144	125	853	783	Plagiocephalic. Sutures all closed inside.
226	259	173	174	150	104	137	120	867	792	
227	261	169	175	134	92	131	118	793	775	
228	266	183	187	146	98	142	125	798	776	Scaphocephalic.
229	274	170	174	137	92	131	120	806	771	
230	279	182	181	152	102	131	118	835	720	
231	280	171	174	142	96	120	108	830	702	
232	293	184	186	139	99	131	120	755	712	
233	304	180	181	152	104	140	130	844	778	
234	309	181	181	140	94	144	122	773	796	
235	311	177	176	139	101	134	121	785	757	
? 236	312	175	174	135	103	126	118	771	720	
237	300	180	183	147	103	141	123	817	783	
238	299	182	184	141	99	137	122	775	753	
239	314	174	175	146	94	130	123	839	747	
240	315	173	172	141	96	132	120	815	763	Asterion ossicle on right side.
241	316	167	171	144	101	131	117	862	784	
242	319	179	183	153	105	137	126	855	765	
243	324	183	181	147	104	—	130	803	—	
244	331	177	178	142	101	145	127	802	819	
245	334	182	181	140	102	125	122	769	687	
246	341	171	175	141	98	135	119	825	789	Some reddish hair found on occiput.
247	349	180	182	141	98	125	112	783	694	Metopic suture open externally and below internally. Asterion ossicle on each side.
248	349A	176	181	145	99	138	122	824	784	
? 249	352	172	171	146	98	128	117	849	744	
250	354	171	173	145	97	128	118	848	749	
251	355	174	175	141	98	137	121	810	787	
252	356	186	188	139	95	128	119	747	688	Scaphocephalic.
253	357	175	174	154	109	140	131	880	800	
254	359	165	167	142	95	137	122	861	830	
255	364	175	177	148	99	135	125	846	771	
256	365	182	186	139	100	132	120	764	725	
257	369	171	173	134	96	128	115	784	749	Palatine torus.
258	373	179	182	150	89	138	125	838	771	
259	375	193	195	145	97	128	119	751	663	Bathrocephalic with wormian bones.
260	381	183	183	135	94	127	115	738	694	
261	383	183	—	146	101	—	—	798	—	
262	385	175	178	152	104	138	123	869	789	Bathrocephalic with wormian bones.
263	388A	174	177	147	101	137	124	845	787	
264	390	182	186	142	99	133	124	780	731	Slightly bathrocephalic. Diamond-shaped lambdoid ossicle.
265	391	167	169	138	90	129	115	826	772	Slightly bathrocephalic.
266	393	185	186	139	100	135	123	751	730	Scaphocephalic. Slightly bathrocephalic.
267	394	176	182	142	100	138	123	807	784	
268	396	165	169	138	94	131	122	836	794	Epipteric bone on each side.
269	399	184	188	146	106	133	124	793	723	
270	401	176	179	152	95	132	123	864	750	
271	407	—	—	146	—	132	—	—	—	Bathrocephalic with wormian bones. Lambdoid ossicle.
272	410	182	182	143	105	141	120	786	775	Asterion ossicle on each side.
273	411	167	170	144	104	136	119	862	814	

MALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
274	412	183	187	144	94	134	121	787	732	Slightly bathrocephalic.
275	414	179	—	130	99	134	119	726	749	
276	422	169	171	144	97	132	118	852	769	
277	429	182	186	142	103	140	124	780	769	
278	430	177	181	138	96	131	118	780	740	Scaphocephalic.
279	431	171	171	146	106	131	120	854	766	Metopic suture partly open above and below externally; closed internally.
280	435	176	179	150	103	141	127	852	801	Epipteric bone on right side.
281	436	180	179	142	96	131	123	789	728	
282	438	178	180	145	97	128	119	815	719	
283	440	175	180	153	105	136	129	874	777	Scaphocephalic.
284	443	178	183	143	96	133	119	803	691	
285	444	170	174	146	91	131	119	859	771	
286	445	178	180	136	102	128	118	764	719	
287	446	180	183	150	105	136	119	833	756	
288	447	170	171	136	102	129	116	800	759	Scaphocephalic. Bregmatic ossicle.
289	448	170	171	141	98	135	122	829	794	Scaphocephalic.
290	450	170	173	134	94	130	116	788	765	Scaphocephalic. Lambdoid ossicle.
291	451	173	173	146	102	130	119	844	751	Odontoid facet.
292	457	183	181	149	97	128	122	814	699	Asterion ossicle on each side.
293	458	171	173	152	96	137	119	889	801	
294	459	175	178	142	97	128	116	811	731	
295	463	185	185	142	101	—	124	768	—	Bathrocephaly with wormian bones.
296	469	186	188	135	94	—	121	726	—	
297	473	180	—	142	104	126	115	789	700	Metopic suture partly open above and below externally; closed internally.
298	477	187	—	145	105	131	119	775	701	
299	495	177	178	142	100	132	120	802	746	
300	504	177	177	144	101	—	—	814	—	
301	508	175	178	132	93	129	112	754	737	Scaphocephalic.
302	514	172	173	142	94	126	117	826	733	
303	515	183	186	147	94?	—	—	803	—	
304	529	165	169	135	92	120	107	818	727	Scaphocephalic.
305	530	178	179	139	100	—	—	781	—	Large healing wound on left parietal.
306	531	170	173	142	—	—	—	835	—	Symmetrical *ossa triangularia* in occipital.
307	538	179	181	136	96	132	—	760	737	Trace of right interparietal suture near asterion.
308	539	187	192	140	102	136	122	749	727	
309	540	187	191	142	101	135	121	759	722	Bathrocephalic with wormian bones.
310	541	186	188	141	104	—	—	758	—	
311	542	171	175	142	103	130	114	830	760	
312	545	182	186	144	99	129	117	791	709	
313	549	185	187	141	103	130	117	762	703	
314	551	187	190?	142	107	—	113	759	—	
315	552	184	185	140	104	132	—	761	717	
? 316	567	175	175	139	105	133	118	794	760	
317	570	—	—	141	108	130	—	—	—	
318	571	175	178	151	105	140	127	865	800	
319	572	174	177	140	102	123	115	805	707	
320	573	171	170	145	98	138	—	848	807	Metopic.
321	577	167	168	142	100	—	—	850	—	
322	582	172	174	146	99	133	—	849	773	
323	583	177	176	139	94	125	117	785	706	
324	585	174	174	136	104	134	119	782	770	
325	587	174	174	154	104	140	127	885	805	
326	588	184	184	153	100	135	125	832	734	

FEMALES.

No.	No. at Hythe.	Ophryo maximal length.	Glabello maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
327	2	171	173	140	91	121	112	819	708	
328	8	173	174	141	94	127	115	815	734	Asterion ossicle on each side.
329	11	163	164	137	95	123	115	840	755	
330	20	172	172	150	97	132	120	872	767	
331	21	172	173	134	96	124	111	779	721	
332	24	162	163	145	—	122	114	895	753	
333	26	170	169	137	94	123	116	806	724	
334	33	170	170	140	96	132	120	824	776	
335	52	174	174	136	93	124	119	782	713	
336	73	174	174	144	98	131	120	828	753	
337	65	171	172	140	98	117	112	819	684	
338	74	179	177	139	106	125	113	777	698	
?339	25	181	184	151	105	137	125	834	757	
340	107	162	163	136	94	120	107	840	741	Epipteric bone on right side.
341	108	164	163	130	95	132	113	793	805	Epipteric bone on right side.
342	129	167	171	144	96	126	111	862	754	
343	135	164	165	137	95	125	112	835	762	Epipteric bone on right side.
344	139	177	177	152	97	124	119	859	701	
345	141	177	176	134	95	128	114	757	723	
346	159	169	170	141	93	136	126	834	805	
?347	164	175	176	144	96	137	122	859	701	
348	176	167	168	140	97	—	—	838	—	
?349	180	181	181	144	103	137	122	796	757	
?350	187	170	173	141	101	131	120	829	771	
351	193	170	168	146	96	124	115	859	729	
352	194	166	167	133	95	125	114	801	753	
?353	199	180	181	145	95	132	119	806	733	
354	200	172	172	145	94	130	115	843	756	
355	206	169	168	147	100	140	119	870	828	
356	213	171	173	147	92	129	119	860	754	
?357	216	176	178	134	98	132	116	761	750	
?358	272	167	168	142	96	124	115	850	743	
359	284	171	170	147	102	127	122	860	743	
360	287	170	168	135	95	125	113	794	735	
?361	289	176	179	136	100	135	123	773	767	Scaphocephalic. Bathrocephalic.
?362	291	173	173	149	109	132	120	861	763	Asterion ossicle on right side.
363	302	182	182	142	90	129	114	780	709	
364	303	169	170	147	101	130	119	870	769	
?365	307	170	171	155	99	134	—	912	782	
366	310	164	166	149	100	132	125	909	805	
367	313	173	175	145	95	134	122	838	775	
?368	317	178	180	134	102	134	116	753	753	
?369	318	159	160	138	92	128	115	868	792	
370	327	159	162	139	93	130	114	874	818	
371	335	180	180	141	95	127	114	783	706	
372	337	176	176	147	103	129	114	835	733	Bathrocephalic with wormian bones.
373	338	177	177	141	97	130	119	797	734	
374	348	175	176	141	101	138	119	806	789	
375	350	166	166	141	96	128	118	849	771	
376	353	170	170	135	95	125	109	794	735	
377	360	167	168	137	94	120	119	820	719	Anterior part of *foramen magnum* deeply notched.
?378	362	170	173	136	94	134	120	800	788	Scaphocephalic.
379	374	170	171	138	96	134	113	812	788	
380	382	171	172	137	100	127	114	801	743	Epipteric bone on each side. Small facet for odontoid.
381	417	177	177	140	93	134	119	791	757	

FEMALES—*continued.*

No.	No. at Hythe.	Ophryo maximal length.	Glabello maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
?382	418	173	175	135	96	131	121	780	757	Bilateral wormian ossicle.
383	424	170	171	141	92	135	121	829	794	
384	434	162	161	142	92	123	119	877	759	
385	220	180	180	134	94	128	115	744	711	Perfect interparietal bone.
386	456	175	178	135	98	133	117	771	760	
387	468	170	171	133	101	127	113	782	747	
388	474	175	174	136	103	132	113	777	754	
389	479	181	180	142	108	137	125	785	757	
390	490	174	174	142	95	131	117	816	732	
391	493	170	171	135	98	121	111	794	—	
392	498	164	167	144	97	122	115	878	744	Epipteric bone on right side.
393	509	172	172	142	98	135	—	826	785	
394	519	174	175	145	94	126	120	833	724	
395	524	178	178	142	95	130	—	798	730	
396	526	161	164	146	101	130	—	907	807	
397	527	171	171	145	95	135	123	848	789	
398	528	170?	168?	138	94	120	113	812	706	
?399	532	175	177	141	97	123	—	806	703	
400	537	169	168	143	97	125	119	846	740	
401	550	170	173	141	97	123	114	829	724	
402	564	164	165	142	90	—	115	866	—	
403	566	173	173	138	—	—	—	798	—	
?404	569	165	167	139	101	125	112	842	758	
405	584	171	169	144	96	134	123	842	784	
406	497	170	171	137	92	123	110	806	724	
407	1	173	172	142	92	130	—	821	751	
408	3	176	174	143	97	127	—	813	722	
409	10	169	170	131	92	131	115	840	775	
410	31	170	171	145	97	127	114	853	747	
411	44	164	167	135	96	124	112	823	756	Epipteric bone on right side.
412	47	170	171	139	102	129	114	818	759	Epipteric bone on right side. Bathrocephalic without wormian bones.
413	62	168	168	139	100	131	116	827	780	Epipteric bone on right side.
414	64	178	178	141	96	121	113	792	680	
415	68	168	169	139	96	129	117	827	768	
416	71	164	163	135	96	122	112	823	744	
417	79	169	169	142	99	117	114	840	692	Metopic suture open externally and internally. Post coronal depression.
418	85	171	172	139	93	126	108	813	737	
419	87	174	174	133	92	123	112	764	707	
420	92	174	174	142	99	130	122	816	747	Metopic. Scaphocephalic.
421	100A	174	173	133	94	137	125	764	787	Epipteric bone on each side.
422	110	172	171	144	97	131	116	837	762	
423	117	169	168	133	92	130	117	787	769	
424	119	171	172	143	97	130	117	836	760	Scaphocephalic.
425	123	170	171	141	96	126	117	829	741	Slightly bathrocephalic with wormian bones.
426	124	168	167	143	95	117	112	851	696	Metopic. Epipteric bone on left side.
427	126	169	168	136	97	127	113	805	751	Asterion ossicle on each side.
428	130	172	172	148	95	131	115	860	762	
429	131	170	170	141	93	131	119	829	771	Slightly bathrocephalic without wormian bones.
430	136	175	175	130	94	133	118	743	760	Scaphocephalic. Epipteric bone on right side.
431	142	168	168	135	100	127	111	804	756	
432	144	174	174	144	98	132	117	828	757	
433	146	171	173	131	91	120	108	766	702	Asterion ossicle on right.

FEMALES—*continued.*

No.	No. at Hythe.	Ophryo-maximal length.	Glabello-maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
434	154	172	172	137	99	124	112	797	721	Epipteric bone on left side. Slightly scaphocephalic.
435	157	166	167	132	102	118	110	795	711	Metopic. Bathrocephalic with wormian bones.
436	162	165	167	141	90	121	112	855	733	
437	167	166	165	139	93	127	116	837	765	
438	170	166	165	138	96	131	117	831	789	
439	181	166	165	136	93	125	—	819	753	
440	184	172	174	144	99	127	118	837	738	
441	186	170	170	133	91	124	117	782	729	
442	191	167	167	140	99	135	116	838	808	
443	198	174	175	148	100	130	121	851	747	
444	205	179	178	140	93	127	114	782	709	
445	208	187	189	142	102	136	123	759	727	
446	211	158	156	134	90	126	115	848	797	
447	212	170	169	140	90	126	114	824	741	Epipteric bone on right side.
448	219	168	168	135	95	123	113	804	732	
449	232	179 ?	—	147	97	134	120	821	749	
450	235	161	161	130	98	125	110	807	776	
451	255	174	172	142	100	130	116	816	747	Metopic suture open externally and internally.
452	257	178	179	137	92	128	113	770	719	
453	258	172	172	144	96	130	115	837	756	Epipteric bone on left side.
454	262	170	169	134	92	132	118	788	776	
455	278	167	167	142	93	130	118	850	778	Epipteric bone on right side.
456	281	174	175	137	87	136	117	787	782	Odontoid facet.
457	253	166	171	140	92	139	121	843	837	Plagiocephalic without obliteration of sutures. Epipteric bone on left side.
458	285	170	169	134	92	132	118	788	776	Metopic.
459	286	188	185	138	98	—	118	734	—	Metopic. Slightly scaphocephalic in frontal region.
460	265	171	172	146	98	134	122	854	784	Epipteric bone on each side.
461	268	170	170	135	98	130	118	794	765	Metopic. Scaphocephalic. Small lambdoid ossicle.
462	276	167	166	131	96	128	119	784	766	Epipteric bone on each side. Asterion ossicle.
463	296	170	173	139	93	131	119	818	771	
? 464	298	184	185	137	104	122	114	745	663	Metopic. Bathrocephalic. Asterion ossicle on right side. Epipteric bone on each side.
465	306	167	168	137	98	125	112	820	749	Small bilateral lambdoid ossicles. Asterion ossicle on right side.
466	322	177	178	133	90	130	111	751	734	
467	326	164	164	144	97	128	117	878	780	
468	330	163	163	145	90	123	112	890	755	Large bregmatic ossicle.
469	323	165	166	146	96	126	121	885	764	
470	325	164	164	144	96	134	118	878	817	Asterion ossicle on each side.
471	332	183	184	130	97	124	113	710	678	Scaphocephalic.
472	333	179 ?	—	144	100	—	121	804	—	
? 473	366	174	175	139	99	119	108	799	684	
? 474	367	174	175	141	100	126	123	810	724	
475	336	172	172	143	97	130	120	831	756	Epipteric bone on right side.
476	339	171	172	138	93	130	114	807	760	Metopic.
477	351	177	176	145	98	128	119	819	723	
478	370	186	186	141	103	134	122	758	720	Upper half metopic suture open.
479	371	173	171	144	96	124	115	832	717	
480	361	156	155	149	90	122	119	955	782	

FEMALES—*continued.*

No.	No. at Hythe.	Ophryo maximal length.	Glabello maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
481	376	168	167	147	96	130	119	875	774	Metopic.
482	377	167	169	140	93	—	121	838	—	
?483	379	177	180	136	96	134	119	768	757	Wormian bone in front of lambda.
484	380	175	175	132	92	127	115	754	726	
?485	384	158	159	144	88	131	119	911	829	Plagiocephalic. Left half coronal suture obliterated.
486	398	160	159	133	94	126	110	831	788	
487	402	177	178	137	93	131	119	774	740	
488	404	162	164	145	98	128	115	895	790	Paroccipital process on left side.
?489	408	166	168	138	97	123	114	831	741	
490	403	163	163	141	94	128	122	865	785	
491	409	161	159	142	100	127	115	882	789	Metopic suture closed internally in lower half. Epipteric bone on right side.
492	419	174	174	137	95	122	111	787	701	
493	420	172	172	140	98	125	115	814	727	
494	321	170	171	145	100	140	126	853	824	
?495	425	162	166	145	88	120	119	895	778	Epipteric bone on left side.
496	428	177	177	141	95	134	120	797	757	Bregmatic ossicle.
497	432	161	162	143	91	129	118	888	801	
498	449	170	166	141	99	127	116	829	747	Metopic. Postcoronal depression.
499	460	175	176	130	91	132	115	743	750	
?500	465	171	170	137	100	129	117	801	754	
501	466	177	179	134	99	128	115	757	723	
502	467	171	170	138	100	124	114	807	725	Bathrocephalic with wormian bones. Left half *os pentagonale.*
?503	462	172	174	140	92	119	110	814	692	
?504	464	174	177	151	96	124	113	868	713	
505	472	156	155	136	90	125	114	872	801	Plagiocephalic. Left half coronal suture obliterated.
506	480	182	183	145	100	129	118	797	709	Asterion ossicle on each side.
507	481	158	159	131	94	126	111	829	797	
508	482	170	170	136	96	120	109	800	706	
509	483	165	168	136	87	122	113	824	739	Three epipteric bones on right side.
510	486	176	176	138	92	126	115	784	716	One epipteric bone on right side, three on left side.
511	488	175	174	138	93	120	112	789	686	
512	489	174	173	132	93	127	107	759	730	
513	476	164	164	137	100	124	111	835	756	Epipteric bone on right side.
514	494	164	161	137	95	127	114	835	774	
?515	499	165	166	139	95	124	113	842	751	Epipteric bone on right side.
?516	500	176	177	140	95	124	—	795	705	
517	501	168	168	141	103	113	108	839	672	Odontoid facet. Post coronal depression.
518	502	168	168	133	92	124	107	792	738	
519	505	172	172	138	95	130	117	802	756	
520	506	166	168	134	90	122	113	807	735	Asterion ossicle on each side.
521	507	180	180	136	94	127	113	756	706	
522	513	157	157	139	96	121	—	874	761	
523	516	159	161	138	94	126	113	868	792	
524	517	185	182	141	108	121	115	762	654	Metopic suture open in lower half externally.
525	518	175	173	146	87	127	—	834	726	Bathrocephaly with wormian bones.
?526	522	165	167	142	96	128	116	861	776	
527	535	162	160	142	89	122	113	877	753	Metopic.
528	543	168	169	136	90	129	111	810	768	

FEMALES—*continued.*

No.	No. at Hythe.	Ophryo maximal length.	Glabello maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
?529	546	170	171	138	92	121	110	812	712	
530	547	161	161	140	92	120	114	870	745	
531	553	180	186	135	91	—	—	750	—	Plagiocephalic. Left coronal suture obliterated.
532	554	167	168	136	—	—	—	814	—	
533	556	163	163	137	93	125	110	840	767	
534	557	160	161	136	99	127	112	850	794	
535	558	175	175	141	97	137	119	806	783	
536	560	170	169	141	97	130	117	829	765	Metopic. Scaphocephalic.
537	561	160	161	139	98	122	112	869	763	
538	563	157	157	135	90	123	116	860	783	Epipteric bone on each side.
?539	574	180	—	143	95	131	118	794	728	Bathrocephalic with wormian bones.
540	579	167	166	142	98	133	120	850	796	
?541	580	178	177	137	93	129	117	770	725	Occipito interparietal suture on each side near asterion.
542	581	174	173	152	95	134	122	874	770	
?543	586	178	178	138	97	135	118	775	758	Slightly bathrocephalic with wormian bones. Epipteric bone on right side.
544	590	177	177	134	93	129	117	757	729	Bregmatic ossicle.
545	34	179	179	143	97	138	122	799	771	
?546	54	184	184	153	104	127	120	832	690	
547	80	167	170	141	97	137	120	844	820	Epipteric bone on right side. *Os triangulare* on right side.
548	137	162	164	142	97	124	115	877	766	Epipteric bone on right side. Bathrocephalic with wormian bones.
?549	143	173	173	136	96	126	111	786	728	Epipteric bone on right side.
550	169	179	180	135	100	124	117	755	693	
?551	177	175	173	142	98	135	120	811	771	
552	196	183	183	136	90	118	113	743	645	
553	78	181	181	140	107	116	115	773	641	Metopic. Post coronal depression.
554	88	172	173	140	98	127	114	814	738	Epipteric bone on right side.
555	105A	173	172	147	99	123	117	850	711	Epipteric bone on right side.
556	328	168	168	144	94	128	117	857	762	Depression at obelion.

CHILDREN UNDER 20.

No.	No. at Hythe.	Approx. age.	Ophryo maximal length.	Glabello maximal length.	Parietal breadth.	Frontal breadth.	Basi-bregmatic height.	Auricular height.	Breadth index.	Height index.	
557	520	6	154	152	145	97	126	117	935	813	
558	148	7	154	150	132	89	123	—	857	799	Four parts of occipital bone separate.
559	149	7	169	162	136	98	123	—	805	728	Metopic. Occipital complete.
560	470	7	157	156	134	98	126	—	854	803	Metopic. Occipital complete.
561	267	7	165 ?	—	138	90	—	116	836 ?	—	Occipital bone missing.
562	127	8	166	165	144	94	133	122	867	801	
563	145	8	176	176	140	92	125 ?	113	795	710 ?	Basioccipital separate from exoccipital.
564	523	8	163	161	135	88	125	114	828	767	Occipital complete.
565	84	9	162	162	138	90	113	106	852	697	Occipital complete.
566	156	9	154	148	137	94	113	107	890	779	
567	151	9	165	164	143	86	125 ?	119	867	758	Basioccipital separate from exoccipital.
568	195	9	173 ?	—	145	99	—	118	838	—	Occipital bone missing.
569	492	9	173	173	135	96	125	114	780	723	Metopic.
570	150	10	161	162	144	90	120	—	894	745	
571	153	10	158	157	141	98	123	118	892	778	
572	295	10	164	162	134	100	124	114	817	756	Metopic.
573	343	11	166	165	138	99	125	115	831	753	Metopic.
574	491	11	169	168	136	91	127	—	805	751	
575	260	12	171	172	131	91	121	107	766	708	Plagiocephalic.
576	533	12	168	165	134	96	119	111	798	708	Metopic suture open externally in lower half. Epipteric bone on each side.
577	290	12	150	149	129	86	122	110	860	813	
578	282	12	173	173	147	96	125	113	850	723	
579	152	14	160	160	134	92	126	110	838	788	Metopic.
580	344	14	163	162	143	96	129	118	877	791	*Os pentagonale.*
581	133	16	166	165	133	95	120	112	801	723	Metopic.
582	378	17	167	167	150	97	127	120	898	760	
583	89	18	179	180	138	90	132	115	771	737	
584	116	18	161	162	135	88	120	106	839	745	
585	118	18	176	175	139	98	130	117	790	739	
586	511	18	173	173	140	83	129	112	809	746	
587	512	18	172	171	141	96	123	—	820	715	
588	534	18	179	181	141	91	127	—	788	709	
589	536	18	161	164	150	91	124	115	932	770	
590	115A	19	177	177	138	—	134	120	780	757	

FIG. 1.—FEMALE SKULL: NORMA LATERALIS.

FIG. 4. MALE SKULL: NORMA LATERALIS.

FIG. 2.—♀ NORMA OCCIPITALIS.

FIG. 3.—♀ NORMA VERTICALIS.

FIG. 5.—♂ NORMA OCCIPITALIS.

REPORT ON THE HYTHE CRANIA.

THE KURDISH TRIBES OF THE OTTOMAN EMPIRE.

By Mark Sykes.

Preface.

The materials collected in the ensuing pages are the results of about 7,500 miles of riding and innumerable conversations with policemen, muleteers, mullahs, chieftains, sheep drovers, horse dealers, carriers and other people capable of giving one first hand information. The results I fear are extremely meagre, but I hope they may prove of use to future travellers.

As hardly anything has been written on the subject in the English language heretofore, I have not been able to make a study of the Kurds from a bibliographical point of view. However, I trust that this will not detract from the interest of the work. I may add that I had among my servants on my last journey representatives from the three most important sections of the Kurds, so that I was able to obtain interpreters without any great difficulty, a matter of some importance amidst the conflicting dialects of the nomads and sedentary mountaineers.

In preparing the following list of the various tribes of the Kurdish race I have endeavoured to simplify the work of future students by marking down and cataloguing as many of the tribes as have come either directly or indirectly under my notice.

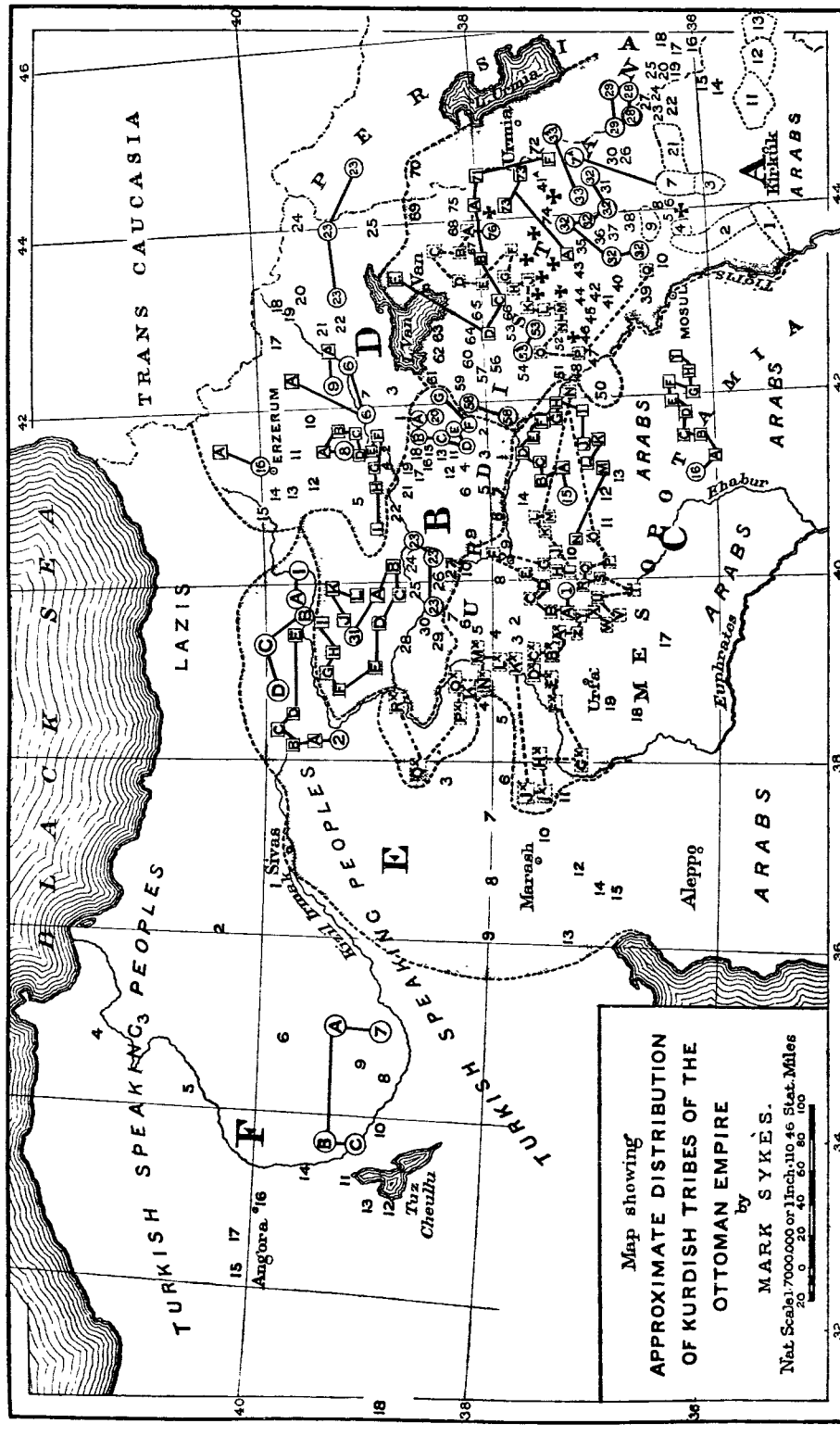
After various abortive attempts at setting them down in a manner comprehensible to any one but myself, I have decided for the purposes of this work to break up the regions inhabited by Kurds into six zones; to each of these zones a section of the catalogue is devoted, each section containing a separate enumeration. Thus in the alphabetical list a tribe will be found, as for instance the Merzigi 76B, section A. To find the position of the tribe the reader must look in zone A on the map for the number 76; he will find this number is connected to a chain of letters; the letter B in this chain will mark the spot where this tribe is to be found, in the catalogue he will find such particulars as I can supply under the number 76B in the printed section A.

Before closing this preface may I say that the zones marked on the map are not ethnological but merely a convenient form of grouping.

Section A.

Introduction.

I have chosen this zone as the first to be treated chiefly because the Kurds dwelling in it are apparently the descendants of those ancient Cordueni who


Map showing
APPROXIMATE DISTRIBUTION
OF KURDISH TRIBES OF THE
OTTOMAN EMPIRE
by
MARK SYKES.
Nat Scale 1:7000,000 or 1 Inch=110.46 Stat. Miles
TRANS CAUCASIA
BLACK SEA
LAZIS
TURKISH SPEAKING PEOPLES
TURKISH SPEAKING PEOPLES
PERSIA
ERZERUM
Van
Urmia
Kirkuk
MOSUL
Tigris
Khabur
Euphrates
Urfa
Marash
Aleppo
Sivas
Kizil Irmak
Angora
Tuz Cheullu
ARABS
ARABS
ARABS
ARABS
ARABS
ARABS
ARABS
ARABS
A
B
C
D
E
F

harassed Xenophon's retreat, and it is at least the theatre of the Kurds' first appearance on the stage of history. The densely populated zone is bounded on the north by Lake Van and the Armenian table land, on the west by the Tigris, and on the south by the plains of the Irak. I should imagine that the majority of its inhabitants are Kurds; however, we have a considerable foreign element in the plains, and it may be that some of the tribes mentioned in my list are not in fact Kurdish tribes but branches of other peoples who have become affiliated to the original mountain race. The foreign or at least non-Kurdish stocks may briefly be enumerated as the Arabo-Aramean population of Mossul, the pure Arameans as typified in the Nestorian and Jacobite Christians of Ain'Kawa, Akra, and Keui Sanjak, the Turkish peoples of Altyn Kiopru, Kerkuk and Erbil, and the Bedawin and Felahin Arabs on the banks of the Tigris and the plains eastward of Mossul.

The two peoples in this zone concerning whom I am completely in doubt are the Shabak No. 5 and Bejwan No. 10, and the Nestorian Christians of Hakkiari, Amadia and Zakho. The presence of the latter are denoted by a black ✠. The question as to whether these Nestorian Christians of Hakkiari, who have a tribal organization, are indigenous Kurds or fugitive Christians of Aramean stock, is I think still open; several learned Kurdish[1] notables are of opinion that the Nestorians of Hakkiari are Kurds who were converted to Christianity before the advent of Al Islam; on the other hand the Christian clergy are firmly convinced that this is not the case. Personally I suspect that both theories are in part true, and that when the Christians fled from Mossul and Irak, they took refuge with the Kurdish Christians of Hakkiari. This would make the Episcopal families new comers, just as many of the Kurdish Moslem chiefs trace their ancestry to Arabian Emirs. I regret that I was unable to obtain particulars as to the names of the Nestorian tribes, but it is to be hoped that the English Mission of the Archbishop of Canterbury will some day supply the deficiency.

With regard to the Kurds I think they may be divided into three classes. Class I.—Nos. 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, who are the semi-nomads of the plains and southern hills; Class II, Nos, 21, 26, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 40, 41A, 44, 48, 52, 53, 53A, 65, 68, 71A, 71B, 71C, 72, 73, who are the sedentary mountain tribes; Class III, the semi-nomadic mountaineers comprising the remainder of the tribes with the exception of No. 50.

As regards Class I the tribes catalogued under these figures are very similar to one another in habits and appearance. They are usually wealthy shepherds and only cultivate the ground for auxiliary purposes, though they frequently employ extraneous labour for agriculture and traffic in the produce thus obtained. They are expert smiths, weavers, and tent makers. Mentally they are far superior to the majority of Kurds, being apt to education, astute men of business and very indus-

[1] The names of these gentlemen are:—Shaykh Nasreddin of Tillu; Shaykh Sadiq, of Neheri (now dead); Shaykh Hamid Pasha of Bashkala.

trious. They live under the rule of hereditary tribal nobles, who are usually very quarrelsome, feuds and intertribal wars being common. These semi-nomads, who are known as the Baba or Baban Kurds, are noted for their chivalry, valour, and thieving proclivities; they are all fine horsemen, and expert marksmen, having of late years discarded the lance and sword in favour of the rifle. I should imagine that the great cavalry armies of the Parthians were recruited from similar tribes, as the present evolutions and tactics of these people resemble those of the troops of Surenas as described in Plutarch's *Life of Crassus.* The patron Saint of the Baban Kurds is Khalid ibn Walid, whom they hold in great reverence, saying that he converted them from Paganism and the worship of fire.

All the tribes mentioned in this class are strictly orthodox Sunni Moslems.

During the months of October, November, December, January and February, they dwell in villages in the vicinity of the numbers as marked on the map; in March they go into tents and remain in them till early in June, at which period many families from each tribe migrate to the Wazna district with their flocks; during the summer months of July, August and September, whether at Wazna or elsewhere they lay up their tents and construct bowers of green wood, in which they live until the autumn nights grow chilly, when they return to their villages. Most of the noble families of the tribes in this class intermarry with the Arabs of Mesopotamia. However, their own women are strikingly beautiful and are allowed great freedom, many of the women can ride and shoot as well as the men, but undertake no manual labour beyond making butter and performing ordinary household duties.

Class II.—The sedentary mountaineers are completely distinct in custom and dress from the Baban Kurds. They are industrious agriculturists, and cultivate every available piece of ground in the vicinity of their villages, showing great capacity in diverting and damming streams, draining and ditching for the purpose of irrigating the terraced fields in the vicinity of their villages; these fields bear crops of barley, wheat, maize, rice, and excellent tobacco. They live under the rule of tribal chiefs and like the Baban Kurds are constantly at war with one another. The men carry rifles and daggers, and are active fighters and hunters. Each village has in its centre or near it a small double bastioned block-house or castle of hewn stone, where in times of war the people take refuge for purposes of defence. The intertribal battles are often extremely bloody, six or seven men killed out of a party of twenty being not uncommon.

As regards mode of life these Kurds, though sedentary, dwell in bowers erected on the flat roofs of their houses in summer. Like the Baban Kurds their women do not veil and are well treated. Some of the tribes in this category are of opinion that they were converted from Christianity, but most of them have Pagan traditions. Among them dwell a good many Jewish families who are never maltreated, but are not permitted to carry arms or engage in tribal feuds, consequently the Jews travel on trading expeditions from tribe to tribe whether the latter are friends or enemies. Nestorian Christians dwelling amongst these tribes are occasionally

found living in a condition of vassalage, but as often as not share and own lands on an equal footing with the Moslem tribesmen.

Class III.—The remainder of the Kurds in section A are semi-nomadic mountaineers, being partly agriculturists, partly shepherds, and partly horse dealers; in dress they resemble Class II rather than Class I; they are of a thievish disposition, bloodthirsty, cowardly, and often cruel. Their women are ugly and hard worked, they usually ride donkeys or mules, and are extremely erratic in their movements. Speaking generally, they differ in appearance from Kurds of Class I and Class II, being big boned, heavily built men, of a very dark complexion. No one who saw them could imagine they were of the same origin. In their wanderings they frequently dispense with tents and shelter behind bales or reed screens. As a rule these semi-nomads are badly armed, poor in goods and of a cowardly nature. In religion they appear to have no fixed belief of any kind, and care very little for such matters, though they are counted as Moslems.

As regards No. 50, section A, the Miran, they are an exception to the above description, and the reader must look under their number for details concerning them. I would also note that in the South Irak, Wazna, and in the vicinity of Mossul, to be a nomad is considered noble; while in the mountains the word *kochar*, or shepherd, is synonymous with "savage," "ignorant" or "brutish."

1. *Daudieh.* 4,000 families. A warlike semi-nomadic tribe inhabiting the banks of the lower Zab. Noted swimmers, poor horsemen, Baban Kurds.
2. *D'sdie.* 5,000 families. A large tribe, partly composed of nomads and partly agriculturists. They intermarry freely with the Gibbur Arab women. This tribe has lost much of its wealth owing to locusts and drought. Their women are exceedingly handsome and affect a peculiar and distinctive dress, *i.e.*, blue turbans like the men, and dark heavy garments, no colour or ornaments of any kind being worn. The men are good horsemen and agriculturists, the headquarters of the tribe are on the Sultan's farm in the Kara Chok Dagh. Baban Kurds.
3. *Shaykh Bezeini.* 4,000 families. A great and warlike tribe, turbulent and fierce. Noted robbers. Great horsemen. Very intelligent, make Martini Henry rifles. Live in villages in winter, dwell in tents in the vicinity of their villages in spring. After the harvest (June) proceed to Persian frontier with their flocks. Return in September, or later if the season is hot. Dress in Persian fashion. Baban Kurds.
4. *Shaykhan.* 500 families. Completely nomadic, wealthy shepherds, pasture flocks between Tigris and both Zabs. Avow no connection with Yezidis,[1] and often camp with the Tai Arabs, with whom however they do not intermarry. Baban Kurds.
5. *Shabak.* 500 families. Sedentary, said to be Shias by some, others

[1] See No. 46, Section A.

affirm them to have a secret religion, others that they are Babis, others that they acknowledge a prophet named *Baba.*

6. *Mamund.* ? families. I know nothing of this tribe but I expect it is really a sub-tribe of the Hamawand No. II, section A.

7. *Girdi.* 6,000 families. A powerful tribe of shepherds, agriculturists and warriors, occasionally robbers. Dress in Persian fashion, very wealthy and good horsemen. They employ the Khoshnao No. 21, section A, to do agricultural work for them. They proceed to the Wazna district in summer to pasture their flocks. One section of this tribe dwelling at Ushkafsakka is well disposed to strangers, another, living about four hours west of Ain Kawa, are noted highwaymen. Baban Kurds.

A. *Girdi.* 1,200 families. These Girdi migrated from the vicinity of Girdmamik about sixty years ago; they have abandoned the use of tents in the summer and are now not to be distinguished from the surrounding mountaineers. They are industrious and wealthy. They still correspond with the mother tribe and send presents to the chief at Ushkafsakka each spring. Baban Kurds.

8. *Khalkani.* 700 families. Semi-nomadic, but unwarlike. Baban Kurds.

9. *Surchi.* 3,000 families. 1,000 of the households are complete nomads. The Surchi have no peculiarities. Baban Kurds. A small tribe of Mamakanli, see section D. Nos. 8G and 9A are attached to the Surchi, evidently they migrated southward at some time, and have become absorbed; see section A, No. 26.

10. *Bejwan.* 800 families. Speak a mixed language, apparently half Arabic, half Kurd, said by neighbours to be of Turkish origin and to be followers of Hajji Bektash.

11. *Hamawand.* 1,200 families. The most valiant, courageous, and intelligent of the Baban Kurd tribes. Splendid horsemen, crack shots, capable smiths, bold robbers, good agriculturists; such as enter the government service prove capable officials. In 1878, 600 Hamawand horsemen armed only with lances penetrated far into the Caucasus, and brought back immense spoils. The Turkish government has of late years done much to suppress this tribe's power, but the men are still famous for their prowess and intelligence, and the women for their beauty. The Hamawand intermarry freely with the Arabs, and reckon themselves of Arabian origin. Most of the Hamawand speak Arabic, their language is, however, Kurdish. Dress, partly Arab, partly Persian. Formerly they were noted lancers, however they now only carry a modern rifle and dagger.

12. *Jaff.* 10,000 families. A great semi-nomadic tribe, as famous as the Hamawand; Saladin was supposed to have been of this tribe; they

inhabit both sides of the frontier. The Jaff leaders are noted for not betraying one another as do other Kurdish chiefs, hence their numbers and independence. They are supposed to dislike Europeans. Baban Kurds.

13. *Guran.* ? families. Baban Kurds.
14. *Nuredi.* ? families. Baban Kurds.
15. *Piran.* 900 families. Similar in customs to No. 3, section A; said to be a sub-tribe of the Hartushi, No. 76, section A. However, as I am not certain on this point, I have marked them as a separate tribe.
16. *Alan.* ? families. This name recurs in a sub-tribe of the Hartushi, (*see* No. 76E, section A) but I could find no connection. We see a tribe in section C, No. 15M, called Alian. Baban Kurds.
17. *Baki Khassa.* ? families. Baban Kurds.
18. *Kialoner.* ? families. Baban Kurds.
19. *Ghowruk.* ? families. Baban Kurds.
20. *Malkari.* ? families. Baban Kurds.
21. *Khoshnao.* 2,000 families. Completely sedentary. Work for Girdi and Shaykh Bezeini, Nos. 7 and 3, and occasionally look after crops of latter tribes during season of absence. Reputed to be poor fighters. Following account of origin was given me by chief Agha of the tribe:—"Ambesbudast was the son of Saranduz, and Saranduz was the Wazir of Sultan Selim. The son of Imam Hussein gave the forefathers of Ambesbudast a seal-ring and lordship over all the lands between Kermanshah and Mossul. Ambesbudast was the forefather of the Khosnao. The two saints of the tribe are Hanifa and Mazdak."[1]
22. *Bilbas.* 400 families. Frontier tribe. Baban Kurds. Semi-nomadic, spend the summer at Wazna.
23. *Acu.* 500 families. Semi-nomadic, some live in the town of Rania, great warriors and good horsemen. Spend summer at Wazna. Baban Kurds.
24. *Mamash.* 2,000 families. Complete nomads. Baban Kurds, spend summer at Wazna.
25. *Mengor.* 2,000 families. A warlike tribe, semi-nomadic, spend summer at Wazna.
26. *Mamakan.* ? families. This tribe now counts as a sub-tribe of the Surchi, No. 9, section A; the name Mamakan, or variations of it, reappears in section C, No. 15E Del Mamikan, and in section D, No. 8G Mamagan, a sub-tribe of the No. 8 Jibranli, and No. 9A Mamakanli, a sub-tribe of No. 9 Sipikanli. Armenian priests and

[1] Mazdak, it will be remembered, was a founder of a religion in Persia during the sixth century

the tribesmen of No. 9A state that the Mamakanli were Armenians who became Moslems. Probably they were a Christian tribe of nomads and have been completely scattered. The Mamakan, Mamagan, and the Del Mamakan have no tradition that I know of.

27. *Baliki.* ? families. A frontier tribe of which I know nothing more than that it exists, however it may be in some way connected with the Bellikan, No. 81, section D, and with No. 15, section E, Bellikanli. However, as the Bellikan, No. 81, are Zazas, it seems to me improbable.

28. *Pirastini.* 1,100 families. Baban Kurds. Village dwellers, similar to the Khosnao, No. 21, section A.

29. *Zemzan.* ? families.

30. *Badeli.* ? families. This is the name of a small sedentary tribe of Sunni Kurds living at Rowanduz; they acknowledge no connection with the Badeli, No. 1D, section E.

31. *Shirwan.* 1,800 families. Sedentary, their name is taken from the locality in which they live, industrious, hospitable, but warlike.

32. *Herki.* 3,000 families. A great nomadic tribe, much scattered, some are to be found near Erzerum, others near Van, and great numbers near Mossul. The Herki are a very dark-skinned people; their neighbours say they are not Kurds at all but some savage race. The Herki women are very bold and manly. The Herki sleep out in autumn without any tents. Taken as a whole they are a low, dirty tribe, owning large flocks of sheep, and dealing in inferior pack horses; it is impossible to mark them down with any accuracy, as they seem to have no fixed beats. They generally camp in small numbers and move about in little detachments. Their divisions are as follows:—

Mendan. We see the name again as a sub-tribe of the Milli in North Mesopotamia, see section C, No. 1G.

Zerhati. Sub-tribe of Herki, roves about in the vicinity of Van.

Zeydan. Sub-tribe of Herki. This name appears again as a sub-tribe of the great Pinianishli, No. 73, section A, and once again as a sub-tribe of Motikan, section B, No. 20E.

Haji. 200 families. Sub-tribe of Herki. This is the sedentary section of the Herki, and lives in the centre of the place marked with the number 32.

33. *Baradost.* 1,500 families. Tribe taking its name from Baradost river.

A. *Baradost.* 650 families. Tribe taking its name from Baradost river.

34. *Berzan.* 750 families. Taking tribal name from district of Berzan; this tribe is famous for its fighting qualities and a certain holy family known as that of the Shaykhs of Berzan.

35. *Nirva.* 800 families. Sedentary.
36. *Reikan.* 800 families. Sedentary.
37. *Zebar.* 1,000 families. This is a district containing about 30 villages inhabited almost entirely by sedentary Kurds who are called Zebar Kurds. They are careful farmers, good vine growers, good builders, hospitable to strangers, but incredibly quarrelsome among themselves. Their chiefs build small castles in which they are generally being besieged unless they are besieging some one else. These Kurds are usually plucky fighters on their own ground. They have a chronic feud with the Shaykhs of Berzan, see No. 34, section A.
38. *Ashaghi.* I can give no particulars of this tribe.
39. *Hasseina.* ? families. A small broken tribe of nomads and villagers near Mossul.
40. *Misuri.* 120 families. A poor sedentary tribe.
41. *Doshki.* 500 families. At Dehok. This section has a bad name for thieving and brigandage. Kermanji, evidently an offshoot of No. 41A, section A.

A. *Doshki.* 2,000 families. Industrious agriculturists at Geaver (Giaver).

42. *Jellali.* 4,000 families. Both sedentary and nomadic near Amadia. We find the name reappear in section B, No. 14. The latter is evidently a migration from Amadia. However, whether this Jellali is the mother tribe of the Jellikanli, No. 12, section E, is by no means certain.
43. *Dere.* 800 families.
44. *Berwari.* 600 families. Sedentary.
45. *Kohan.* 70 families. Nomads, probably a sub-tribe, but of which I know not.
46. *Shaykhan.* Yezidis or devil worshippers. ? families. Semi-nomadic. This tribe dwells near Shaykh Adi, the religious centre of the Yezidis and the dwelling place of the religious head of the sect. There is also a temporal chief who used to live there, but I understand that he now keeps his whereabouts a secret. The tribe takes its name from Shaykh Adi. There is nothing to show that it has any connection, other than religious, with the Yezidis of the Sinjar. See section C, No. 16.
47. *Reshkan.* ? families. There are said to be some Yezidis in this tribe.
48. *Haweri.* Yezidis or devil worshippers. 300 families. These live near Zakho. I suspect some connection with the Haverka, section C, No. 151.
49. *Spirti.* 70 families. Nomads. The name was given me while passing their tents. I had not, however, time to investigate.

50. *Miran.* 1,000 families. Low tribe of shepherds migrating from Jeziret ibn Omar to Lake Van in spring and returning in autumn. This tribe has an atrocious reputation for all kinds of villainy. Curiously enough they are usually very friendly to Christians and Europeans, but treat Moslems in a scandalous fashion. They move up to within about 15 miles of Lake Van annually, passing Shernakh on their way. They have a chronic feud with the Goyan tribe, section A, No. 53A.

51. *Hasseina.* 500 families. I cannot connect this with Hasseina, No. 39, section A.

52. *Sindi.* Total number of families 1,500. A mixed tribe of Moslems and Nestorians, latter in a minority. Sedentary. Two sub-tribes—*Slope,* 600 families, and *Guli,* 30 families.

53. *Goyan.* 1,400 families. A large and powerful tribe of sedentary and semi-nomadic Kurds. They have, I expect, several sub-divisions, but I have been unable to obtain their names. This branch contains a certain number of Zazas, for particulars of whom see section B. The Goyan are noted for independence and valour. They slew Mustapha Pasha, the great chief of the Miran, in a pitched battle in 1899.

A. *Shernakhli.* 600 families. Name given to a sedentary section of the Goyan living at Shernakh.

54. *Dakhori.* ? families. A few sedentary Kurds in the vicinity of Shernakh, probably a section of the Goyan.

55. *Shiriki.* 200 families. Wealthy sedentary tribe. Name suggests connection with the Zirikanli, No. 10, section D.

56. *Balian.* 70 families. Semi-nomadic, poor and scattered. Similar to the Herki, No. 32, section A.

57. *Eiru.* 100 families.

58. *Atmanikan.* 5,000 families. Very wealthy nomads. May be often seen in the Bitlis pass and near Bohtan, where their headquarters are. They dress like the Herki, No. 32, section A, but have not the bad reputation of the latter. They have hardly any horses. In summer they migrate up to the Mush plain.

59. *Silukan.* 900 families. Cultivators and nomads. Similar to No. 58, section A. Also migrate in summer to the Mush plain.

60. *Kichian.* 150 families. Nomads.

61. *Duderi.* 400 families. Nomads in summer on the south shore of Lake Van.

62. *Alikanli.* 150 families. Nomads. Very insignificant. Probably a sub-tribe, but could not discover whose.

63. *Halaji.* 900 families. Mixed sedentary Kurds, Turks, and Armenians. dwelling on the southern shores of Lake Van.

64. *Tiyan.* 300 families. This tribe has a bad name. It is said by some to be an isolated fragment of the great Arab tribe of Tai, but I do not know if there are any grounds for this belief.
65. *Hawatan.* 300 families. Sedentary in the Bohtan district.
66. *Keka.* ? families. Near Julamerik.
67. *Bellicar.* 180 families. A small tribe of semi-nomadic Kurds; no connection with Belliki or Bellikanli. They state that they were converted from heathenism by Khalid Ibn Walid.
68. *Khani.* 180 families. Sedentary near Khoshab.
69. *Takuli.* 450 families. Perhaps a sub-tribe of the Zilanli; the Takuli think they came from Erzerum about 100 years ago. They are now sedentary, very poor physique, and appear to be of the same low race as the Sipikanli north of Lake Van mentioned in the introduction to section D.
70. ? families. Owing to an accident the name of a tribe has here been lost. I leave the number blank in hopes of some day re-discovering the right name.
71. *Shekak.* Total number of families 6,000. A notable tribe; they are called Revand by the local Armenians. They only spend three months in tents, and therefore may be called sedentary. The following sub-tribes are, I think, only an ancient political confederation, and not attached by ties of blood.

A. *Shekifti.* 1,200 families. Completely sedentary.
B. *Mukeri.* 1,200 families. Completely sedentary; said to have migrated from Persia fifty years ago; split in two portions, one at Nourdous and one at Khoshab.
C. *Sheveli.* ? families. This tribe crops up again near Iskilip; I presume a forcible migration in Selim's time.
D. *Butan.* ? families.
E. *Sheveli.* ? families.
F. *Shekak.* 1,000 families. A southern branch of the Shekak; complete nomads.

72. *Zerzan.* 100 families.
73. *Pinianishli.* 1,200 families. A large tribe and head of a confederation of which the following are the chief branches. It is impossible to locate them more precisely than by saying they inhabit the country in the vicinity of the No. 73, section A. The following are the names of the affiliated tribes.

Zeydan. There are some Zeydan in Modeki, No. 20E, section B, and as we have seen a sub-tribe of the Herki, No 32C, section A.

Barkoshan. ? families.

Kinarberosh. ?

Suratawan. ?

Billijan. ?

Jelli. ? families. I suggest the mother tribe of No. 12, section E.

Gewiji. ? families. I suggest the mother tribe of No. 12, section E.

Shevilan. Obviously a fragment of No. 71C and 71E, section A.

Musanan. For remarks see section B, No. 12.

A. *Little Pinianishli.* 500 families. Apparently an offshoot of No. 73. There is supposed to be something disgraceful about this tribe, what I do not know. 13 of its families are Yezidis, others Christians.

74. *Givran.* ? families. This is the name of a small tribe in the district of Giaver. Local authorities state that the name merely indicates Giaver-an, *i.e.*, Giaver people, in which case it may have no connection with No. 8, section C, and No. 31L, section B.

75. *Shemsiki.* 900 families. An interesting tribe, once nomadic, now sedentary. The chiefs consider themselves of Arab stock and look on the common tribesmen as of low race. The tribesmen are very ugly as a rule, the chiefs refined and handsome.

76. *Hartushi.* This is a very important Kurdish tribe, and I suggest that investigation may some day show that it is the connecting link between the Kurds of Irak and the Kurds of Armenia. The nomadic branches of this tribe have a very bad reputation. Although richer than the Herki, No. 32, section A, they resemble them in mode of life and general appearance. The following are the sub-tribes.

A. *Ezdinan.* ? families. Said to be Yezidis. There is no mistake about the name.

B. *Merzigi.* 900 families. Sedentary near Bashkala.

C. *Mamresh.* 200 families. Yezidi religion but belong to Hartushi tribe.

D. *Mamed.* 200 families. I believe this sub-tribe of the Hartushi to be sedentary.

E. *Alan.* ? families.

F. *Beroz.* 60 families. Famous as cultivators of tobacco.

G. *Jiriki.* ? families.

H. *Shidan.* ? families.

J. *Mamkhor.* 400 families. Very warlike nomads.

K. *Khawistan.* ? families.

L. *Sharafan.* 3,000 families. The largest branch of the Hartushi nomads; descend south of Akra in spring.

M. *Mamadan.* 200 families. I think sedentary; some occasionally descend to the Beykhey Dagh, near Zakho.

N. *Gavdan.* 300 families. Nomads, very bad reputation as thieves, unhospitable and savage. Wealthy horse breeders. Camp in spring near Zakho.

O. *Zedek.* Nomads.
P. *Zefki.* 150 families. Nomads, shepherds.
Q. *Hafjan.* 500 families. Nomads.

SECTION B.

The tribes inhabiting this zone are completely cut off from the others mentioned in the catalogue, and have little or nothing in common with them. The barriers which divide this region from the zones A, C, D and E, may be enumerated as follows.

Firstly, the great Bitlis Gorge, which can only be approached from either extremity and forms a kind of natural dyke between zone B and A. Secondly, the Tigris which is usually unfordable and practically interrupts all communication with C. Thirdly, the huge spurs of the Eastern Taurus range which act as a protecting wall against D. Fourthly, the upper Euphrates which separates the Dersim Mountains from the overlapping portions of zone E.

From the point of view of a casual observer, I should be inclined to group the Kurdish tribes in this zone into five classes—

Class I. Would include numbers 1 to 10, 27 and 29.
Class II. No. 20 and its appendant letters.
Class III. Nos. 12 to 19.
Class IV. No. 23.
Class V. No. 31 and its appendant letters.

As regards Class I, they appear to be semi-nomadic and sedentary tribes who have at some period migrated *viâ* the Bitlis Pass into the undulating arable pasture land between Diabekir and the Bitlis Su. These people may quite possibly be a part of that multitude of tribes who lived in a state of vassalage to the ancient Kings of Armenia; the names Bekran, No. 6, and Musik, No. 1, both well known in the old histories, give colour to this idea. At any rate these tribes of the southern plains own no connection with any of the tribes mentioned in the other classes.

As to the habits and dress of this class, I can give very few details, as on each occasion that I passed through their country, I was unable to make any study of them with the exception of the Tirikan, No. 9. The men appear to be tall and well built, fairly industrious, but not very hospitable.

Classes II, III, IV and V, are dealt with in the catalogue as classes *en bloc* and need no further comment.

1. *Musik.* ? families. This tribe has been mentioned by previous travellers, but I could obtain no account of it. I do not omit it because the Chaldean Historian Toma of Merdis makes mention of the name. There is, however, a village in Motikan called Mosik. None of the Motikan Kurds, however, make use of the name as a tribal designation,

2. *Penjinan.* 500 families. A tribe noted for its fighting qualities. There are said to be some Yezidi families among them.
3. *Keskoli.* ? families. I am doubtful as to this tribes existence, it is probably a local name for a division of the Penjinan.
4. *Pouran.* 200 families. Semi-nomads, pastoral and agriculturists.
5. *Shaykhdodanli.* 200 families. I do not know if this tribe is sedentary or nomadic. There are a great number of non-tribal Kurds in this neighbourhood. A further difficulty lies in the fact that the Kurds of this region are averse to making known their tribal names or customs; resemblance of the name to the Duderi and Dudikanli should be noted.
6. *Bekran.* 500 families. Nomads; winter near Diabekir, and summer near Sairt; tradition states that they are the descendants of the Bagratians. The Armenian clergy generally speak with some certainty on this point. We see the name Bekiran, No. 16H, section C, among the Yezidis of the Sinjar. The Yezidis of the Sinjar believe that they came from a country north of the Tigris.
7. *Reshkotanli.* 500 families. Nomads; the Rushdunians are often mentioned in the history of Chamich, the Armenian priest; there is a peculiar resemblance in the name.
8. *Besheri.* ? families. A sedentary tribe between Sairt, Meyfarkin and Diabekir.
9. *Tirikan.* 650 families. A sedentary tribe between the Euphrates and Haini; fond of bright coloured clothes; wealthy and intelligent; kindly disposed to the few Armenians who live among them. The local Armenians state that they are of common origin and that they (the Armenians) are not of Armenian race; this idea is naturally discouraged by the Armenian clergy and laity of Diabekir, but I have it on the authority of a priest and Christian headman of the district.
10. *Kuzlichan.* ? families. This is a small tribe located as on map; the name is that of a district in the Dersim Mountains, about 80 miles north. I think we may infer a southerly migration from that region.

11. *Zekeri*	?	families.	See note, next paragraph.
12. *Musi.*	?	„	
13. *Sarmi.*	400	„	
14. *Jellali.*	100	„	
15. *Khazali.*	50	„	
16. *Bederi.*	?	„	
17. *Malashigo.*	?	„	
18. *Bosikan.*	180	„	
19. *Kurian.*	180	„	

NOTE.—The Bosikan and Kurian, Nos. 18 and 19, and the sub-tribe of

the Bosikan, No. 15, inhabit the district between Mush and Kabeljôus. Their tradition is that they used to worship a sword thrust in the ground and the moon and stars, and that they lived under the government of a Christian King named Tavit, who dwelt in the castle of Boso. Presently there came a certain Shaykh Nasredin, from the Khalif at Baghdad, who slew King Tavit and enlightened the people in the truths of Islam. The Emirs of Nasredin were Zakharia, Saru and Musa, and these brought with them their henchmen who formed the tribes of Zekeri, No. 11, Musi, No. 12, Sarmi, No. 13; after this settlement other tribes, namely, Malashigo, No. 17, Bederi, No. 16, and Jellali, No. 14, followed in the wake of the first and helped to drive the Bosikan and Kurian into the northern mountains. All these tribes have Armenians attached, and those with the Bosikan and Kurian are said to be the descendants of followers of King Tavit. None of the Armenians in this district bear any resemblance to those of the Mush plain or the villagers near Van, nor are they to be distinguished from the Bosikan and Kurian Kurds in dress or appearance. The Malashigo and tribes Nos. 11, 12, 13, 14, 16 call themselves Arabs, and besides talking Kermanji and Armenian, also talk among themselves a peculiar bastard Arabic which is just comprehensible, but almost as different from ordinary Arabic as is Italian from French. It is far more difficult to understand than the Arabic spoken at Sairt. At Tillu, a large village in the vicinity of Sairt, resides at present a certain Shaykh Nasredin, who is supposed to be the lineal descendant of the Shaykh Nasredin, previously mentioned. I met one of his nephews who told me that the family had a document giving them Tillu and certain lands; this paper was signed by Sultan Selim the conqueror of Persia. The family consider themselves to be of Abbasid stock and although few of them ever leave Kurdistan they make it a point to talk good Arabic among themselves. Shaykh Nasredin's nephew, who appeared a very well read man, told me he thought that the tribes Nos. 11, 12, 13, 14, 16, 17 were not really of Arabian origin but that they had accepted Islam and changed their tribal names for those of their conquerors whose language they adopted and then corrupted.[1]

20. *Modeki* (*Motikan*). This is the name of a peculiar and inaccessible mountain region north of Bitlis, and incidentally the appellation of

[1] We have already seen the name Jellali in section A, No. 42, and the Musanan, No. 73, section A, perhaps the tribes Musi and Jellali, Nos. 12 and 14, section B, are descendants of some of the former who may have assisted Shaykh Nasredin.

all Kurds who dwell within it. I endeavoured to effect an entrance but was unable to do so; anyone wishing to explore this district must do so on foot; the tribes inhabiting it are apparently mostly Zazas; they are extremely wild and shy, and difficult to talk to. Other Kurds who had been into the Motikan district supplied me with the following particulars:—

A. *Keyburan.* Zaza Kurds.
B. *Bubanli.* „ „
C. *Kusan.* „ „
D. *Rutchaba.* „ „
E. *Zeidan.* Kermanji Kurds.
F. *Erikli.* „ „ (Sometimes called Khiarta).
G. *Pir Musi.* „ „

By all accounts the Bubanli are the most ancient tribe in Modeki, the Zeydan, as we have seen in No. 32, section A, and No. 73, section A, are split as sub-tribes elsewhere. If the story that the Kermanjis of Motikan are slaves to the Zazas be true, there would be some ground for supposing that the former entered as refugees, particularly as the extremely difficult nature of the ground forbids the idea of its being conquered by anything but a regular army. Apparently the Zazas of Motikan are neither Moslems nor Christians. I would suggest that a thorough exploration of this district would prove very interesting, and might throw a wonderful light on the history of Armenia, if a good collection of folk songs and legends could be made.

21. *Pinjari.* 450 families. Sasun district speak Kermanji.
22. *Slivan.* ? families. Probably Zazas.
23. *Non-Tribal Zazas.* 1,000 families. In the locality where this number appears there are a quantity of non-tribal Zazas. Their state is almost anarchical, and they seem, although not naturally cruel or vicious, to have hardly any regard for human life; they frankly say they are as beasts of the field, and have hardly any religion. As an example of how unsophisticated these people are, I might cite the fact that such as I have met who have served in the Army have often become devout Moslems and look with shame on their previous state. They appear to have no idea of tribal organization. They speak the Zaza language and seem very poor farmers.

The Zazas are small, impish people with shrill voices, and are extremely shy before strangers. I should imagine that they are the remains of a primitive mountain race, similar to the Bihls.

The only instance I have encountered of Zazas living on the plains or in the country is at Suverek, where a few live with the Karagetch.

24. *Kedak.* 600 families. Zazas due south of Peru on the Veshin Dagh.
25. *Ashmishart.* 500 families. Zazas. Shia sect.
26. *Kulbin.* ? families. Zazas.
27. *Gurus.* ? families. Beyond the name I could obtain no particulars concerning this tribe. Ibrahim Pasha,[1] however, knows the name.
28. *Sinan.* ? families. Zazas.
29. *Elia.* ? families. Nomads; impossible to ascertain whether Zazas or Kermanji Kurds.
30. *Behirmaz.* 500 families. Zazas. Shia sect.
31. *Dersimli.* General appellation of Kurds living in the Dersim. With the exception of No. 31C, section B, Shawak, all the Dersim tribes are apparently Pagans, who call themselves Shias, their religion, as far as I could ascertain, being a mixture of magic and nature worship, which again develops into Pantheism. A man of this region said to me, "I do not worship God, for a part cannot worship the whole." However, they are Shia Moslems in outward form, swearing by Ali, and call him the greatest of the prophets, this, I think, chiefly to annoy the Sunnis. The Dersimli are doubtless robbers and cut-throats, but I doubt their courage, since a very little show of authority suffices to keep them in their fastnesses, whither it is difficult to follow them. All round the foot of the Dersim there are tribes who live in a kind of feudal vassalage to Beys who talk Turkish and veil their women; at first I imagined these Beys were the descendants of Turkish Military Fiefs, of whom one is always hearing and never meeting; as on former occasions these "Turkish" Beys turned out to be the descendants of indigenous chiefs, who have settled down and adopted Turkish customs. The Dersimli are small, wiry men with sharp features; they are intelligent and have a keenly developed artistic sense for colour and dress. There are indeed on the slopes of the Dersim some Turks, but they are Ak Koyunlu, of Usun Hassan, and live in a kind of commune of their own; for history of latter see Deguigne's *Histoire des Huns.* As far as I could ascertain, the Dersimli have a special dialect of their own but it is closely allied to Zaza.. Most of the Dersim tribes are regular migrants from south to north in late spring; their villages are left quite empty without caretakers.

A. *Milan.* This is the original mother tribe of the great Milli confederation in North Mesopotamia, with whom they still keep up communication. For particulars of the legend and importance attached to the name Milli or Milan, see No. 1, section C.

B. *Kechel.* 1,000 families. Near Palu.

[1] No. 1, section C.

C. *Shawak.* ? families. Sedentary; lately converted to orthodox Sunnism.

D. *Ferhad Ushaghi.* ? families. In the vicinity of Surpignan. This is the only Kurdish tribal name beginning with F.

E. *Bakhtiarli.* ? families. Perhaps 30 villages near Chemishgezek; semi-nomadic, or at least migratory, having two villages, one on the high land and one in the valley.

F. *Karabanli.* ? families. At Asunik.

G. *Mirzanli.* ? families. Exact location in Dersim unknown.

H. *Abbasanli.* ? families. Make splendid carpets of great intricacy of design and fineness in weaving.

I. *Balashaghi.* 2,000 families. Sedentary.

J. *Latchin Ushaghi.* ? families. At Amuga.

K. *Kuzlichan.* ? families. This is certainly not the name of a tribe, but of a Dersim district containing several tribes; however, the name crops up as that of a tribe north of Diabekir, I presume a migration of some families from the Dersim.

L. *Givran.* ? families. Reported to be in Dersim, but I am doubtful.

SECTION C.

This zone is in reality the ancient province of the Northern Jazirah of the Empire of the Khalifs of Baghdad; the Kurds inhabiting it may be roughly classed as follows:—

Class I, No. 1 and appendant letters. This class may be divided into two subsections—

(1) No. 1 to No. 1 Dx.
(2) No. 1 Ex to No. 1 Rx.

Class II, No. 15 and appendant letters.
Class III, No. 16 and appendant letters.
Class IV, the remaining numbers with the exception of 18 and 19.

With regard to Class I, subsection 1, they are evidently partly formed of a great migration from the Dersim district in the reign of Sultan Selim, but owing to intermarriage for many generations with the Arab, Aramean and Kurdish peoples of the district, and by absorbing many of the local tribes, they have lost their original characteristics. They are poor cultivators, but good herdsmen and carpet weavers.

Their mode of life is simple, January, February, March and April they spend in the lower slopes of the Karaja Dagh; April and May on the plains of Mesopotamia; June, July, August and September sees them move up towards Diabekir; in October, November and December they move once more southwards.

Subsection No. 2. These tribes admit themselves of the same race and origin as subsection No. 1, but are cut off from it by the Euphrates river; they are

all Shias or Pagans of the Dersimli type. At certain seasons priests from the Dersim district visit them and hold religious services.

Their dress is similar to that of the Turkish speaking people of Anatolia; however, their women veil before Moslems and Christians. The men are not very remarkable for any particular characteristic.

Class II.—It is very difficult to state with any preciseness whether the tribes included in this class can be termed Kurds proper or no. I presume that they represent scattered fragments of the old Aramean population, mixed with Imperial colonists of Roman times, Kurds, Persians, Turks and Mongols.

Some tribes are wholly Moslem, others wholly Christian (Jacobite sect), others Devil worshippers, others contain adherents of all three religions. Taken as a whole they are industrious and capable people, good stone-masons, and admirable vine-growers, but withal fierce, bloodthirsty, vindictive, revengeful, and treacherous. Peculiar religious movements are not uncommon amongst them, and the adoption of Evangelical Protestantism by a certain number has been productive of unexpected developments.

Class III.—The great Yezidi or devil worshipping community and tribal confederation of the Sinjar is entirely Kurdish. In physique the Yezidis of the Sinjar resemble the Dersimli Kurds, being small-boned, wiry, lean and hungry-looking men, with pinched features, small hooked noses, pointed chins, broad shallow lower jaws, high cheek bones, narrow close set black eyes, and thin lips. They twist their hair in six or seven small braided plaits which hang down on either side of their faces.

The dress of the Sinjar tribes is unlike that of any other people, and I should imagine of remote antiquity. It consists of a pointed brown felt cap, a white shirt of cotton cut square at the neck and with no opening in front, a cloak of gazelle skin or light brown leather, raw hide sandals, and leather belt.

By their own tradition they migrated to the Sinjar after Timur's invasion. However, they admit that the Yezidi faith existed in the Sinjar Mountain long before that date.

Class IV.—These Kurds of North Mesopotamia are the off-scourings and riff-raff of all Kurdistan, rogues, thieves, vagabonds and bullies almost to a man; they seem to have no single redeeming virtue, being idle, cowardly and cruel. They have little pride of race and seemingly intermarry and mix with gypsies and other low nomad tribes. From this class, however, must be excepted No. 18, No. 19, and No. 10, who have evidently migrated at some period from the plains north of Lake Van.

Note.—East of Urfa there is a large settlement of gypsies, who will pretend they are Kurdish tribesmen; the traveller should be on his guard against the information they will give him. The word "Nowar," or the question, "Do you come from Howek?" will invariably silence them, or make them admit their true origin.

1. *Milli.* 30 families. This name has a curious and peculiar mystery attached to it, which innumerable cross-examinations on my part of

every kind of Kurd has failed to elucidate to my own satisfaction. Some people merely say that the Milli were a powerful tribe who were broken up by the Turks in the 18th century. The facts at present stand as follows:—Ibrahim Pasha is chief of the Milli, and although his own tents do not amount to more than 30, he has complete jurisdiction over more than 2,000. Secondly, he is spoken of with great respect and reverence by the Kizilbash of Malatia, not because he is wealthy but because he is the head of the Milli; thirdly, he is the only stranger who can travel through the Dersim without an escort; fourthly, the Shemsiki, No. 75, section A, look on him as their nominal head; fifthly, isolated villages in Anatolia and the Erzinjian district speak of him as their patriarchal chief. Now this is all the more peculiar since in the Kurds enumerated there are Shias, Pagans, Pantheists, Zazas and orthodox Moslems, of which latter faith he is; his influence is therefore neither political nor religious, and yet influence he has, for Kurds will come from miles around to ask his opinion on family quarrels and generally take his verdict as final.

Again there are certain tribes which although allied to him in war have no regard for his Patriarchal position. Ibrahim's own explanation is as follows:—"Years and years ago the Kurds were divided into two branches, the Milan and Zilan; there were 1,200 tribes of the Milan, but God was displeased with them and they were scattered in all directions, some vanished, others remained; such as remained respect me as the head of the Milan."

Now the tradition with Ibrahim is that all this happened long before the days of Mohammed, thus some Milan are Christians, others Yezidis; the Milan tradition is that they are children of Shem and came from Arabia, but that the Zilan are from the East. Now this vague legend is found almost in its entirety among the Kurds of the Dersim, save that there we have the following variation:—

The Milan came from Arabia and settled in the Dersim; however, when Sultan Selim conquered West Kurdistan, his Vizier saw that the Kurds wandered up and down the Dersim slopes, and that the land was crowded with nomads, the Vizier ordered such as wished to cultivate, to build houses, and such as wished to remain in tents, to go south; some built houses, learned Turkish and veiled their women, others fled to the Dersim fastnesses, and others went south, among the latter the chief family of whom Ibrahim Pasha is now the head.

Among other stories of the Milan is the one that the Zilan are a base and ignoble race; curiously enough, whereever one meets a tribe admittedly of Zilan origin (they are in section D, Nos. 6, 9,

9A, and 17) you find rough and barbarous people with a peculiarly hideous cast of countenance. The legend to me is extremely interesting, but the way in which Milan Kurds would suddenly grow vague or change the subject while relating fragments of it was more than maddening. The reader would be surprised if he knew the months of toil I endured in collecting the above small paragraph.

All avowed Milan tribes are starred.

*A. *Danan.* 250 families. Nomads.

*B. *Seidan.* 450 families. Nomads. We have seen a similar name in section A, Nos. 32 and 73, and section B, No. 20E, but on this occasion I suggest the name is derived from some leader, either a Sayad or a man called Said.

*C. *Kiran.* 550 families. Nomads. Ibrahim Pasha suggests that these are of the same tribe as the Yezidi tribes; of course these Kiran are orthodox Moslems.

*D. *Dudikanli.* ? families. Nomads. With Ibrahim in N. Mesopotamia; there are five villages near Varto who speak Zaza, and there are said to be some in the Dersim, see section B.

(?)*E. *Khalajan.* 700 families. Nomads.

(?)*F. *Kelish.* ? families. Nomads.

*G. *Mendan.* ? families. Nomads, a small sub-tribe of No. 1; whether these have moved from the Herki, No. 32, section A, to the Karaja Dagh or *vice versa*, is difficult to say.

*H. *Kumnaresh.* 350 families. Nomads.

*I. *Sherkian.* 80 families. Nomads.

*J. *El Kawat.* ? families. Nomads.

*K. *Dashi.* ? families. Nomads.

*L. *Meshkenli.* ? families. Nomads.

*M. *Kalendelan.* ? families. Nomads reported in the Dersim, section B.

*N. *Haji Bairam.* ? families. Nomads.

*O. *Hassanekan.* 260 families. Nomads. These have nothing to do with the Hassananli, who are avowedly Zilan.

*P. *Khalajari.* 700 families. Nomads.

*Q. *Elia.* ? families. Nomads.

*R. *Isiadat.* 85 families. Nomads.

*S. *Terkan.* 700 families. Nomads.

*T. *Nasrian.* 75 families. Nomads.

*U. *Tchuvan.* 210 families. Nomads.

*V. *Sartan.* 80 families. Nomads near Ras-ul-Ain.

*W. *Usbakhan.* 70 families. Nomads.

*X. *Matmieh.* 800 families. Nomads.

*Y. *Chemikan.* 250 families. Nomads.

*Z. *Barguhan.* 130 families. Nomads.

*Ax. *Hisulieh.* 550 families. Nomads.

*Bx. *Chiaresh.* ? families. Nomads.

*Cx. *Zirofkan.* 2,000 families. Semi-nomads of the Karaja Dagh.

*Dx. *Daghbashi.* ? families. A large semi-nomadic tribe east of Suverek.

*Ex. *Bujak.* ? families. Nomads.

*Fx. *Hoshian.* ? families. Nomads.

(?)*Gx. *Beski.* 800 families. Apparently sedentary. A curious legend of this tribe is that they are of English or Frank origin and that their ancient name was *Salargan.* With reserve I suggest the name *Lusignan,* and as an explanation that some member of that house once had dealings with the tribe or took refuge in its tents.

*Hx. *Haji Manli.* 500 families. Nomads. No horses, travel small stages with donkeys.

*Ix. *Kassiani.* 500 families. Sedentary.

*Jx. *Chakali.* 1,000 families. Nomads.

*Kx. *Merdis.* 1,000 families. Sedentary, I think.

*Lx. *Eutergetch.* ? families. Nomads.

*Mx. *Janbeg.* ? families. Sedentary; obviously a fragment of No. 18, section F.

*Nx. *Beyleyan Porga.* 500 families. Sedentary.

*Ox. *Derejan.* 800 families. Nomads.

*Px. *Kao.* 5,000 families. Nomads and sedentary.

*Qx. *Mulikan.* 500 families. I do not know if nomad or sedentary.

*Rx. *Derejan.* ? families. Possibly a separate branch of No. 10x, section C or perhaps only the summer quarters of that tribe.

2. *Karagetch.* 1,700 families. This is the name of a low tribe of semi-nomads dwelling near Suverek; brutal, savage and indescribably filthy. This tribe has a bad name in every respect, and being on a high road gets a bad name for Kurds from many travellers. Curiously enough many of the Karagetch speak Zaza, but between Diabekir and the Tur Abdin there is a vast quantity of nameless non-tribal Kurds, who apparently are outcasts from their own clans; the worst of these "undesirables" seem to attach themselves to the Karagetch.[1]

[1] *Karagetch.* This tribe was originally a nomad Turcoman clan of Western Anatolia and was settled by Sultan Selim on the slopes of the Karaja Dagh. The object of this transfer was to compensate Kurdistan for the loss of the Ziriki, Tirikan and other tribes which the Ottoman Government had forcibly settled in West Anatolia. The Karagetch, however, rapidly intermarried with local non-tribal Kurds of low origin, and being illiterate soon lost their language and became to all intents and purposes a Kurdish tribe. Further, owing to the fact that for some years after their re-settlement they were protected and favoured by the Ottoman Government, many families of local nomadic Kurds joined their encampment and so helped not only to increase their numbers but to complete the transformation of the Turcoman clan into a Kurdish tribe.

3. *Non-tribal Zazas.* For an account see No. 23, section B.
4. *Chaikessen.* ? families.
5. *Barhan.* ? families.
6. *Hasseran.* ? families.
7. *Abu Tahir.* ? families. These are said to be of Arab origin but talk Kermanji.

*8. *Givran.* ? families. Sub-tribe of No. 1, section C. (Accidentally left out of the letters.)

9. *Eimerzan.* ? families. This is a doubtful tribe.
10. *Chichichieh* (*Kiki*) (*Kikie*). 1,200 families. This is a large tribe of semi-nomadic Kurds, now inhabiting the slopes of the Karaja Dagh in winter (in villages) and descending in the Jagh-Jagh River in spring and early summer. Their chiefs state that they are the descendants of an Emir sent to rule the Diar *Erabieh* by the Abbasid Khalifs. When the Khalifate grew weak this family remained and was taken by the Kikieh Kurds as a ruling family. The local Bedawin look on this family of chiefs as men of good blood. The chiefs have a notable contempt for their tribesmen, who they talk of as "Kurdish Dogs," and I believe will not marry their women. The chief Agha of the Kikieh, Abdur Rahman, is a well read man, and has done a good deal of work with a view to locating the ancient cities on the banks of the Khabur; he has read a certain amount of history, and states that the Kikieh were one of the last remnants of the sedentary population of the Jazirah, that they were driven north by the Shammar, and only come south with the object of showing their rights of settlement in event of further re-establishment of agriculture in the north Jazirah.
11. *Dakhori.* ? families. A small migration from Shernakh.
12. *Bunesi.* ? families. I think this tribe does not exist, but as travellers have reported it I give the name.
13. *Mirsinan.* ? families. No particulars obtainable.
14. *Surkishli.* 900 families. Sedentary. This tribe is said to speak the dialect of Baban Kurds; if so, perhaps, connected with Surchi, No. 9, section A.
15. Under this number I have grouped the Moslem, Yezidi and Christian tribes of the Tur Abdin.

A. *Mizizakh.* 390 families. Tur Abdin. Moslem. Kurds.

B. *Saur.* ? families. Tribe of the Tur Abdin; mixed Christians and Moslems; speak Arabic.

C. *Mahalemi.* 800 families. This tribe has a peculiar history. They state that 350 years ago they were Christians. During a famine of corn they asked the Patriarch permission to eat meat during Lent. The Patriarch refused, and they became Moslems. They speak a

bastard Arabic, and the women wear red clothes and do not veil. Ibrahim Pasha says they are now a mixed race of Arabs and Kurds. Some families are still supposed to be Christians.

D. *Haruna.* 750 families. Sedentary Kurds; 90 of the families are Jacobite Christians.

E. *Del Mamikan.* ? families. A tribe of the Tur Abdin; speak bastard Arabic.

F. *Domana.* 180 families. Tribe of the Tur Abdin; Christians and Moslems.

G. *Dorkan.* 120 families. Tribe of the Tur Abdin mountain, composed of Yezidis and Moslems.

H. *Moman.* 600 families. Moslems, speak Kermanji; 90 families are Christians, also three of the tribal leaders.

I. *Haverka.* 1,800 families. Half Christian, half Moslem, speak Kermanji. I suspect some connection with the Haweri Yezidis, No. 48, section A.

J. *Salahan.* ? families.

K. *Girgiri.* 500 families. Tent-dwelling agriculturists; talk Kermanji, but said to be of Arabian origin.

L. *Dasikan.* 900 families. Yezidis, Moslems and Christians; speak Kermanji; Tur Abdin.

M. *Alian.* 1,200 families. Christians, Moslems and Yezidis; language, I think, Kermanji.

N. *Mizidagh.* ? families. See No. 15A. I suspect these to be a small nomadic section of No. 15A, who live close at hand.

16. *Yezidis of the Sinjar.*

A. *Bumteywit.* ? families. A tribe of Arabs living in a state of serfdom to the Yezidis of the Sinjar.

B. *Mirkan.* ? families. Sedentary.

C. *Samuga.* ? families. Dwell in tents near the Sinjar; I suspect the name of this tribe is derived from the locality in which they live.

D. *Beit-el-Khulta.* ? families. Sedentary.

E. *Hababa.* ? families. Sedentary.

F. *Kiran.* ? families. Tent dwellers in Sinjar; there are some other Moslem Kiran which have been noted. See No. 1, section C.

G. *Beled.* ? families. Sedentary Yezidis dwelling near the town of Beled Sinjar, and go by this name.

H. *Bekiran.* ? families. Sedentary; perhaps a section of the Bekiran near Diabekir.

I. *Mendikan.* 300 families. A tribe of nomadic Yezidis between Tell Afar and Beled. A certain number of the Mendikan are Moslems, and do not intermarry with the Yezidis. I could not ascertain whether they were Arabs who had attached themselves to the

Mendikan or not. At any rate on all matters of business they are on good terms with their devil-worshipping fellow tribesmen. I may note that Father Chamich's *History of Armenia* makes frequent mention of the Mandukanians.

17. *Alush.* 200 families. A tribe of outcasts and refugees under a Kurd chief; language Arabic.

18. *Berazieh.* 9,000 families. A branch of the Berizanli, No. 6A, section D, who have migrated at an unknown period to Seruj in North Mesopotamia. This is a confederation of the following tribes:—

	Families.
Keytkan	700
Shaykhan...	600
Okian	700
Shadadan	700
Alidinli	700
Ma'afan	700
Zerwan	500
Pijan	800
Karagetchan	500
Dinan	1,000
Mir	1,000
Didan	300

The fact that the Karagetchan appear in this list does not prove that the rest of the confederation should date their settlement at Seruj from post-Selim times. Their tradition is that they hail from Lake Van, whence they came during a famine year. They are now partly "Arabised," and many wear Arab dress and have adopted Arab speech. They are partly complete nomads, partly completely sedentary, and partly semi-nomadic. They have rather a bad reputation for freebooting, but are industrious and intelligent.

SECTION D.

The tribes inhabiting this zone are extremely complicated in organization, and very difficult to order and catalogue. As far as I can see they seem to fall into three classes.

Class I.—Nos. 6, 6A, 8, 9 to 13, 17, 23, 24.

These tribes are of a distinct and distinguishable race of tall, heavily built men, of surpassing ugliness of face and peculiar uncouthness of behaviour. Many travellers have generalized from them and imagine all Kurds to resemble them.

They are seemingly true nomads by instinct, and lack capacity of any kind for either war or agriculture, they appear at once stupid and treacherous, disloyal, rapacious and quarrelsome. However, they must have some qualities which are not apparent, since they seem to have been the masters of the country which they inhabit long before the government of Constantinople had any

power there. Their traditions state that they originally came from Diabekir, and were at one time either Armenian Christians or worshippers of fire. In many cases they have affiliated local tribes to themselves, notably the Jibranli, No. 8. But the affiliated tribesmen such as the Bellikan, No. 8I, are very easy to distinguish by physiognomy alone. A peculiar custom subsists among them as their women shave the hair of the scalp in a tonsure-like form. They are all orthodox Sunnis.

Class II, in which I would include Nos. 8A, 8B, 8C, 8D, 8E, 8F, 8G, 8H, 8I, 9A, 18, 19. These tribes I am inclined to look on as the original shepherd tribes of the region, who inhabited it before Class I entered the district; they are usually small, fine-featured, inoffensive people, with no very salient characteristics.

The Mamakanli are the most interesting in this division, for details see catalogue.

Class III.—I would suggest that Nos. 7, 16, and 16A are bodies of exiles sent from their native places by Sultan Selim the conqueror of Erzerum.

Class IV.—The remainder of the tribes in this region of whom I can give no details.

1. *Penjinan.* ? families. Nomads. Summer quarters, a few villages in the vicinity; call themselves Penjinan, No. 2, section B.
2. *Silukan.* ? families.
3. *Chukurli.* ? families.
4. *Azli.* ? families.
5. *Lolanli.* 480 families. Shia section.
6. *Hassananli.* 3,300 families. A large tribe owning 110 villages in the districts of Hinis Melasgird and Warto. Some of the members of this tribe are semi-nomadic, but have been gradually abandoning their tents of late years.

6A. *Berizanli.* 900 families. This is a sub-tribe of the Hassananli; all are now sedentary; probably the mother tribe of No. 19, section C.

7. *Isoli.* ? families. Some near Lake Van, possibly a fragment of the Hisulieh, No. 1Ax, section C.
8. *Jibranli.* 2,000 families. This is a tribe and confederation of 8 tribes as follows:—

A. *Mukhel.* ? families.

B. *Arab Agha.* ? families.

C. *Torini.* ? families.

D. *Aliki.* ? families.

E. *Asdini.* ? families.

F. *Shaykhekan.* ? families.

G. *Mamagan.* ? families. Probably connected with the Mamakanli, see No. 9A, section D.

H. *Shadelri.* ? families. Shias. A break off from No. 1C, section E.

I. *Bellikan.* 6,000 families. Zaza speaking Kurds, Shias.

The tradition of the Jibranli is as follows:—They lived in Arabistan (this to a Northern Kurd may mean Diabekir) three months in houses, nine months in tents each year. A certain Assad Pasha ordered them to go to Bingol, near Mush. The Jibranli are now rapidly becoming completely sedentary. It seems pretty clear to me that this tribe is composed of the Jibranli and fractions of others who have separated from their own clans. These, I expect, were the original inhabitants of the mountains before the arrival of the Jibranli, by whom even now they are roughly treated, and apparently live in a kind of vassalage to them. The Bellikan are somewhat more independent of the Jibranli and keep to themselves. The Jibranli women shave the top of their heads as do the men. The men wear the most extraordinary clothes, something after the fashion of East-end costermongers, pearl buttons, black velvet collar and cuffs, baggy trousers, sash, and, among the well-to-do, a collar and tie; on the head is worn an enormous white felt tarbush about 1 foot high bulging out like a busby; around this is turned a very small turban of silk. These are the only Kurds I have seen who dress in this way; I expect the costume, except for the tarbush, is a modern development. Another peculiarity of the Jibranli is that they wear carefully trimmed mutton-chop whiskers and long hair; the whole combination is more than fantastic. I might add the Jibranli in appearance resemble the Haideranli, being grotesquely ugly.

9. *Sipikanli.* 3,000 families. This is a base tribe dwelling north of Lake Van, they have the same rough manners as the Haideranli.

A. *Mamakanli.* ? families. Now count as a sub-tribe of the Sipikanli; they have been stated by some to be the ancient Mamagonians of the Armenian histories.

10. *Zirikanli.* 6,000 families. A tribe similar in all respects to the Jibranli, No. 8, section D, save it is one block tribe, as far as I know, with no proper subdivisions. I could not ascertain whether they also reckoned themselves from Arabistan. They were nomadic, but have settled during the last 10 years.

11. *Rashwan.* 70 families. Nomads.

12. *Bazikli.* 70 families. Nomads.

13. *Putikanli.* ? families. Near Khighi Kermanji, sedentary.

14. *Girdi.* ? families. Evidently a migration from No. 7, section A.

15. *Pisianli.* 700 families. Kermanji. Sedentary.

16. *Shaykh Bezeini.* 450 families. Two or three sedentary villages at Erzerum, obviously a migration from No. 3, section A.

A. *Shaykh Bezeini.* ? families. Reported to be some near Tortwin, a migration from No. 3, section A.

17. *Zilanli.* ? families.

18. *Badeli.* ? families. At Alashgerd. Shias.
19. *Shaderli.* ? families. A few semi-nomads at Alashgerd. Shias.
20. *Bashmanli.* ? families. Same as No. 56, section A? There are said to be many of this tribe in Persia, similar to, and connected with, No. 56, section A.
21. *Hamdikan.* ? families.
22. *Manuranli.* ? families.
23. *Haideranli.* 20,000 families. The largest Kurdish tribe in existence to be met with from Mush to Urumia. The whole tribe are a low rough race of people of no merit either as soldiers, agriculturists or shepherds.
24. *Adamanli.* 1,800 families. Semi-nomadic.
25. *Yezidis.* I was unable to discover the name of this tribe, who are devil-worshippers.

SECTION E.

This zone, which lies between the Kizil Irmak and the Euphrates, presents the traveller with a picture totally different to any other in Kurdistan. The Kurds have a different position, and no observer could imagine they belonged to the same race as those described in the preceding catalogues; however, the dialects correspond pretty closely, though a Kurd from section A would find great difficulty in making himself understood. The tribes fall fairly easily into four classes:—

Class I. Containing all Kurds included in No. 1 and its appendant letters.

Class II. No. 2 and its appendant letters.

Class III. No. 3 and other tribes in its vicinity whom I have been unable to catalogue.

Class IV. The remaining numbers.

With regard to Class I, the Kurds in this division are completely sedentary, build fine villages, are industrious and intelligent, peaceful, but extremely treacherous, and on occasion ruthless and cruel. Fair hair and blue eyes are not uncommon among them; the men are generally short but handsome, and very submissive in their demeanour. To each of these tribes are attached certain families of nomads, all extremely poor, dark skinned and repulsively ugly, who claim common origin with the village dwellers.

The whole of Class I are reputed Shias, but undoubtedly have a secret religion.

Class II stands by itself, and I must refer the student to the catalogue.

Class III, the Sinaminli, I have been inclined to connect with the Milan tribes Nos. 1Hx to 1Rx, section C.

However, I have come to the conclusion that this would be a mistake. Police and government officials count them all as Kizilbash Kurds, but I am inclined to

think the Sinaminli are really exiles from Azerbaijan. They are complete Shias, but certainly have no Pagan rites or secrets.

They are fine handsome people, good farmers, literate, and very artistic in the painting of the interior of their houses.

Class IV are, generally speaking, nomads from Diabekir or Lake Van, who have drifted down the Taurus slopes toward the Mediterranean.

They are now settling down as sedentary agriculturists, or hire themselves out as shepherds. The shepherds dwell in tents with stone walls in winter, tents in summer, and bowers in autumn, they are kind and hospitable; and have a good reputation.

1. *Kureshli.* 2,000 families. Speak Kermanji; Shias or Pantheists. These Kermanji speaking Kurds of the north are an utterly different race to any of the foregoing tribes; they are a handsome, quiet people, who detest orthodox Moslems, and are always very reserved and quiet in the presence of the latter; they seem to have no predatory or nomadic instincts at all, but behind their silent demeanour there is a strange, savage spirit, which I have noticed among no other Kurds. They are excellent farmers and much inclined to philosophic speculation, this latter point is curious since they are seemingly illiterate. Another point in which they differ from all other Kurds is their peculiarly quiet manners and lack of humour.

A. *Balabranli (small).* 60 families. Shias in name; dwell on the opposite bank of Euphrates; curiously enough these people talk the Kermanji dialect. Seemingly they are more akin to the Badeli, No. 1D and No. 1C, section E, in appearance than to the Dersimli.

B. *Balabranli (great).* 500 families. A little south of Erzinjian, Zaza speaking, Shias in name, apparently Pantheists.

C. *Shaderli.* 3,000 families. Shias or Pantheists, a type similar to, but lower than, the Kureshli; live in underground houses; very poor agriculturists.

D. *Badeli.* 700 families. Kermanji Shias, semi-nomadic. There are said to be a few near Rowanduz.

2. *Kochkiri.* 10,000 families. This is a very peculiar tribe, or perhaps one might almost call them a separate nation. The men and women are of a peculiar type, being dark with finely-chiselled features, and resembling no other Kurdish race. Their language is seemingly a dialect of Kurdish, but hardly comprehensible to Zazas or Baba Kurds, or Diabekir Kermanjis. In religion I take them to be advanced Pantheists, who recognize nature as a female principal and God as a male. This opinion I give with every reservation as the result of interpreted conversations with well-to-do elders. The Kochkiri are miserable farmers, and dwell in semi-underground dwellings similar to those in the Mush plain and north of Lake Van.

A fact made the more peculiar when one notices that the Armenians and Moslems, who live near the Kochkiri, live in well built villages with hewn stone houses. The Kochkiri tradition is that they lived on the Dersim but were driven thence by the present mountaineers. The Kochkiri are an unwarlike people who bear no arms, and are extremely submissive. The Moslems say that they are treacherous and have very little regard for human life. I am inclined to believe that many Kochkiri inhabit the little known district north of the Sivas-Zara road. I had not time to make further investigations.

The divisions of the Kochkiri are as follows:—

A. *Sarolar*
B. *Barlolar* } in the vicinity of Karajaran.
C. *Garnolar*

D. *Ibolar.* In the vicinity of Hamobad.

E. *Eski Kochkiri* (*old*). 400 families. This is a tribe near Erzinjian who the Kochkiri say has no connection with them but was driven out of the Kochkiri district by tribes Sec. E., No. 2, A, B, C, D, from which we may infer that Kochkiri is not the real name of Sec. E, No. 2, A, B, C, D.

3. *Sinaminli.* 2,500 families. This is a large tribe of real Shias dwelling in the vicinity of Malatia. These are true Shias and by report their dialect more nearly approaches modern Persian than that of any other of the Kurds. They are very friendly to Europeans and strangers, a fact that may have given rise to the idea that all Shias or Kizilbash are so, but I have had bitter experience to the contrary.
4. *Kurejik.* ? families. This sounds an unlikely name.
5. *Al Khass.* 500 families. There is a mountain called Al Khass, south-east of Aleppo, from which this tribe may have taken its name.
6. *Kodir Zor.* 600 families.
7. *Kara Hassan.* 300 families. This may be a Turkoman tribe; see De Guigne's *Index of Names,* to the *Histoire des Huns.*
8. *Chughrishanli.* 500 families. Probably sedentary.
9. *Nederli.* ? families.
10. *Doghanli.* 250 families. Nomads.
11. *Dellianli.* ? families. A small tribe of nomads near Marash.
12. *Jellikanli.* ? families. Some at Van, others in the Marash plain. Latter are poor shepherds.
13. *Lek Kurdi.* ? families. This is a small tribe near Adana; they are said to speak Turkish. The name is familiar to Kurds on the Persian border, who say there are some in the Persian dominions.
14. *Delli Kanli.* 200 families. A small tribe of nomads of the Marash plain, the men are tall and well built, the women good looking.

These people live in ordinary Kurdish tents in summer on the Taurus slopes, in winter they proceed to fixed camps about 30 miles west of Killis. The fixed camps have stone walls for the tents. This applies equally to Nos. 10, 11 and 12, and No. 1Hx in section C.

15. *Bellikanli.* 250 families. Complete nomads. Kermanji dialect; rove about the Marash valley; no horses.

SECTION F.

This zone is quite outside the Kurdistan proper, and represents the various forcible migrations of tribes from all parts of Kurdistan undertaken by Sultan Selim the conqueror. The catalogue will give approximate points from whence they came.

Interest is given to the matter by the following trifle which I remarked. Near Angora I met men from tribes Nos. 15 and 17, they wore a similar dress and turban, the turban being twisted in a peculiar manner. Near Erzinjian I remarked the same peculiar turban, which I had not seen elsewhere, being worn by certain Turks. I asked them what was the meaning of this head-dress, whereupon they replied that they were descendants of Janissaries who had been given lands by Sultan Selim after his conquest. A visit to the Museum of the Janissaries and reference to some prints of Sultan Selim's period showed me that this turban, which has now gone out of fashion, was the common head-dress of that day.

The reason it is worn by these two colonies is obvious. The descendants of the Janissaries were isolated from other Turks and observed the fashion of their fathers. The tribesmen in Anatolia had evidently adopted or been obliged to adopt Turkish dress soon after being exiled, but being an isolated people did not follow the changing fashions of later times.

1. *Ukhchicemi.* 300 families. Sedentary.
2. *Urukchili.* 400 families. These may be Yuruks.

*3. *Milli.* 20 families. A small band of shepherds I met near Osmanjik; they said they were Milli, and have evidently come from either the Dersim or Karaja Dagh.

4. *Shaykh Bezeini.* 120 families. Nomads living near Boiabad in Anatolia; say they were driven there from No. 3, section A, by Sultan Selim. Wear Anatolian dress and now talk Kermanji dialect.
5. *Sheveli.* ? families. A forcible migration from No. 71E, section A.
6. *Badeli.* 200 families. Sedentary branch, have settled near Yuzghat; these are now orthodox Moslems and date their conversion 70 years back. I presume a forcible migration from No. 1D, section E.
7. *Haji Banli.* 300 families. Semi-nomadic, sub-tribe of No. 1, section C. A forcible migration from the Dersim or Karaja Dagh.

A. *Khatun Oghli.* 400 families. Semi-nomadic, subtribe of No. 1. section C, from Karaja Dagh. (Possibly Turkomans.)

B. *Makhani.* 300 families. Semi-nomadic, sub-tribe of No. 1, section C, from Karaja Dagh.

C. *Omaranli.* 800 families. Semi-nomadic, sub-tribe of No. 1, section C, from Karaja Dagh.

8. *Barakatli.* 1,000 families.

9. *Tabur Oghli.* 300 families. Semi-nomadic, might be Turkomans, but I was assured they were not.

10. *Shaykh Bezeini.* ? families. Reported to be some near Alashgerd, a migration from No. 3, section A.

11. *Judi Kanli.* 200 families. Perhaps a migration from Jebel Judi, near Shernakh.

12. *Khalkani.* 400 families. The name of a tribe now extinct which used to live near Rowanduz.

13. *Seif Kani.* 500 families. Semi-nomadic.

14. *Nasurli.* 600 families.

15. *Tirikan.* 400 families. A colony of Kurds planted north of the railway line, about 24 miles west of Angora; for origin see No. 9, section B.

16. *Atmanakin.* ? families. A small section reported in tents near Angora, probably a forcible migration from No. 58, section A.

17. *Zirikanli.* 500 families. Near Angora, migration from No. 10, section D.

18. *Janbekli.* 5,000 families. Mixed, nomads, semi-nomads and sedentary; expelled by Selim from No. 1Mx, section C (the most westerly Kurds).

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MISCELLANEA.

PROCEEDINGS OF THE ROYAL ANTHROPOLOGICAL INSTITUTE, 1908.

January 28*th*, 1908.

Annual General Meeting (see page 1).

February 11*th*, 1908.

Prof. W. RIDGEWAY, F.B.A., President, in the chair.

The election was announced of Dr. ROLAND B. DIXON and Mr. S. P. V. JERVOISE, as Ordinary Fellows of the Institute.

Dr. A. C. HADDON, F.R.S., read a paper entitled "An Additional Note on New Guinea Games," illustrated by lantern slides (see p. 289).

Questions were asked by the PRESIDENT, Dr. CAMPBELL, Mr. GOMME, Mr. LEWIS, Mr. EDGE-PARTINGTON and Mr. YULE.

The TREASURER exhibited a new instrument for determining the colour of the hair, eyes and skin (see *Man*, 1908, 27).

The apparatus was discussed by the PRESIDENT, Mr. GOMME, Mr. LOVIBOND and Mr. YULE.

February 25*th*, 1908.

On the motion of Mr. LONGWORTH DAMES, Mr. A. L. LEWIS was voted into the chair, in the absence of the President and Vice-Presidents.

Miss M. E. DURHAM read a paper on "Montenegrin Manners and Customs," illustrated by lantern slides.

The paper was discussed by Mr. GOMME, Mr. LONGWORTH DAMES, Mr. SEFTON JONES, the TREASURER and the CHAIRMAN.

March 10*th*, 1908.

Prof. W. RIDGEWAY, F.B.A., President, in the chair.

Dr. A. J. EVANS having taken the chair, the PRESIDENT read a paper on "The Origin of the Crescent as a Muhammadan Badge," illustrated by lantern slides and specimens (see p. 241).

The paper was discussed by Dr. EVANS, Dr. WRIGHT, Mr. LONGWORTH DAMES, Mr. VISICK, Miss DURHAM, Mr. SMURTHWAITE, Mr. HAYES and Mr. HUTCHINSON.

The PRESIDENT having resumed the chair,

Mr. A. L. LEWIS exhibited a series of objects from Palæolithic and Neolithic sites in Central France, and read a paper "On Some Megalithic Remains in the Neighbourhood of Autun," illustrated by lantern slides (see p. 380).

The paper was discussed by the PRESIDENT, the TREASURER, Mr. HODSON and Dr. WRIGHT.

March 24th, 1908.

Prof. W. RIDGEWAY, F.B.A., President, in the chair.

The election was announced of Dr. W. O. E. OESTERLEY and L'ABBÉ BREUIL as Ordinary Fellows of the Institute.

Dr. W. L. HILDBURGH read a paper on "Sinhalese Magic," illustrated by specimens and lantern slides (see p. 148).

Questions were asked by Mr. SMURTHWAITE, Mr. PARKYN, Mr. BALFOUR and the PRESIDENT.

May 5th, 1908.

Prof. W. RIDGEWAY, F.B.A., President, in the chair.

The election was announced of Mr. G. CALDERON as an Ordinary Fellow of the Institute.

Mr. F. G. PARSONS read a paper on the "Hythe Crania," illustrated by specimens and lantern slides (see p. 419).

The paper was discussed by the PRESIDENT, Mr. KEITH, Dr. WRIGHT, Mr. SMURTHWAITE and Mr. GRAY.

May 19th, 1908.

Prof. W. RIDGEWAY, F.B.A., President, in the chair.

The election was announced of Drs. BROWN, COLLETT, CONRAN and Mr. STUBBS as Ordinary Fellows of the Institute.

Mr. L. W. LA CHARD read a paper on "The Pagan Guari of Northern Nigeria."

The paper was discussed by Mr. PALMER, Mr. LEWIS, Miss WERNER, Dr. STANNUS, Mr. SMURTHWAITE, Mr. DENNETT, Mr. PARKYN and the PRESIDENT.

Mr. N. W. THOMAS communicated FATHER W. SCHMIDT'S latest views as to the distribution and affinities of Australian languages (see *Man*, 1908, 104).

Questions were asked by Mr. LEWIS, Mr. CALDERON, Mr. SMURTHWAITE, Miss PULLEN-BURRY.

June 23rd, 1908.

Prof. W. RIDGEWAY, F.B.A., President, in the chair.

The election was announced of Messrs. LA CHARD, STANNUS, CRAWFORD, DUKE and DUNDAS as Ordinary Fellows of the Institute.

The PRESIDENT referred to the death of Sir JOHN EVANS and paid a short tribute to his memory.

Mr. MARK SYKES read a paper on "The Kurdish Tribes of the Ottoman Empire," illustrated by lantern slides (see p. 451).

The paper was discussed by the PRESIDENT, Mr. SMURTHWAITE, Mr. LEWIS and Mr. PARKYN.

November 24th, 1908.

Prof. W. GOWLAND, F.R.S., Past President, in the chair.

The election was announced of Messrs. R. M. DAWKINS, J. P. DROOP, N. FENWICK, H. J. FLEURE, Capt. H. D. FOULKES, Messrs. H. E. LEVESON, A. H. MACMICHAEL, R. MERIVALE, J. H. MILTON, Dr. GORDON MUNRO, Col. J. SHAKESPEAR, Dr. D. WATERSTON, Mr. R. WELPLY and Mrs. WEGG as Ordinary Fellows of the Institute.

Mr. W. SCORESBY ROUTLEDGE read a paper on "Primitive Pottery and Ironworking in British East Africa," illustrated by lantern slides and specimens.

The paper was discussed by the CHAIRMAN, Dr. HADDON, Dr. FELKIN, Mr. BALFOUR, Mr. MENTZ TOLLEY and Mr. YOUNG.

December 8th, 1908.

Dr. C. H. READ, Past President, in the chair.

The election was announced of Mr. HERBERT CLARK as an Ordinary Fellow of the Institute.

Mr. LONGWORTH DAMES having taken the chair, Dr. C. H. READ read a paper entitled "Notes on Early Ornament."

The paper was discussed by Mr. LEWIS, Dr. SELIGMANN, Mr. PARKYN, Dr. OESTERLEY, Mr. YOUNG and Mr. TABOR.

Colonel J. SHAKESPEAR read a paper on "The Kuki-Lushai Clans."

The paper was discussed by Mr. HODSON, Mr. PARKYN and Mr. GOMME.

BUREAU OF ANTHROPOLOGY.

THE following Memorial, which was supported by a large number of signatures of well known administrators, men of science and heads of business houses, was presented in November:—

"To the Right Honourable Herbert Henry Asquith, K.C., M.P., Prime Minister and First Lord of the Treasury; to the Right Honourable Reginald McKenna, K.C., M.P., First Lord of the Admiralty; to the Right Honourable Herbert John Gladstone, M.P., His Majesty's Secretary of State for Home Affairs; to the Right Honourable Sir Edward Grey, Bt., M.P., His Majesty's Secretary of State for Foreign Affairs; to the Right Honourable The Earl of Crewe, K.G., His Majesty's Secretary of State for the Colonies; to the Right Honourable Richard Burdon Haldane, K.C., M.P., His Majesty's Secretary of State for War; to the Right Honourable Viscount Morley, O.M., His Majesty's Secretary of State for India; to the Right Honourable David Lloyd George, M.P., Chancellor of the Exchequer; to the Right Honourable Winston Spencer Churchill, M.P., President of the Board of Trade; and to the Right Honourable Walter Runciman, M.P., President of the Board of Education.

"WE, the undersigned, respectfully beg leave to call attention to the following considerations:—

"1. It has long been felt by anthropologists that the study of anthropology possesses not merely a scientific interest but has also great practical utility for the nation.

"2. Several of our distinguished administrators, both in the Colonies and India, have pointed out that most of the mistakes made by officials in dealing with natives are due to the lack of training in the rudiments of ethnology, primitive sociology and primitive religion. Numerous instances of the troubles arising from this cause can easily be adduced.

"3. At the time when the 'native problem' forms a very important factor in Colonial and Indian administration, we venture to think that the training of young

officials is a matter of national importance, and there is evidence that some of our leading administrators are fully alive to its value. Recently, Sir Reginald Wingate addressed a letter to the Universities of Oxford and Cambridge in which he asked whether those Universities were prepared to give instruction in ethnology and primitive religion to probationers for the Sudan Civil Service: the Oxford Anthropological Committee and the Cambridge Board of Anthropological Studies at once replied in the affirmative, and courses of instruction in those subjects have already commenced.

"4. We therefore respectfully submit that the time has arrived when all selected candidates for the Consular, Sudanese, Colonial and Indian Services should be required to take a course of study in those branches of ethnology, sociology and religion which have a practical bearing on the races amongst whom their future work will lie.

"5. Not only is it important that the probationers should be trained in the elements of anthropology, but it is also desirable that the officials already in the service should be encouraged to render themselves more efficient in their duties by obtaining instruction when at home on furlough. Some of these, from time to time, have gone to Oxford and Cambridge to improve their knowledge, or rather to obtain a scientific knowledge respecting institutions and practices which come under their observation in the performance of their duties, but under the present system men with such interests and energy are, not unnaturally, exceptional. On the other hand, if the Government gave facilities and encouragement to its officials to make themselves more efficient in the way indicated, a stimulus would be given to all such civil servants to fit themselves better for their work, and to record facts invaluable for administration and commerce.

"6. Nor is it only for the administrator that training in anthropology and facility for its further study are important. For purposes of commerce it is of vital necessity that the manufacturer and the trader should be familiar with the habits, customs, arts and tastes of the natives of the country with which or in which they carry on their business. The Germans have long since seen the value of such a training; they have spent, and are spending, large sums annually in promoting the study of the ethnology of all parts of the world, and their remarkable success in trade in recent years, not only with primitive and barbaric races, but also in China and Japan, is largely due to this fact.

"7. From mere ignorance of local habits and customs, travellers, missionaries and others not unfrequently have provoked the natives instead of gaining their sympathy, and thus not only have nullified the results of costly expeditions, but also have caused political difficulties and complications.

"8. In the two old Universities ample means are already provided for the training of probationers and officials in anthropology, and there are good reasons for believing that other universities will, before long, establish similar departments.

"9. On the other hand, no provision has as yet been made anywhere for the training of schoolmasters and medical officers in anthropometry, to fit them to take measurements of school children and army recruits. Yet this branch of anthropology is one of the highest importance, not simply for scientific reasons, but because of its practical bearing on the great question of physical deterioration, which has long engaged the attention of anthropologists and the medical profession, and has lately been discussed in Parliament.

"10. Before, however, any series of measurements can be taken which is likely to lead to fruitful results, some fixed principles of anthropometrics must be accepted by official bodies, in order that a uniform system may be adopted throughout the United Kingdom and ultimately throughout the Empire.

"11. Although the teaching of anthropology can be carried out efficiently by universities, there is a distinct need for a central body, which shall be able to co-ordinate all branches of that study, and discharge for it functions analogous to those performed for science in general by the Royal Society, and for the special study of geography by the Royal Geographical Society. It is clear that such a body could not be constituted in, nor its functions discharged by, any university, for any attempt to establish such a Bureau of Anthropology in any one university would inevitably lead to jealousies fatal to its success and detrimental to the general interests of the study.

"12. On the other hand the need indicated could be fully supplied by the establishment in London of a bureau in which all the distinguished anthropologists of the Kingdom could meet on common ground, as do all the leading mathematicians, physicists, chemists and biologists in the Royal Society. All the elements of such a bureau already exist in the Royal Anthropological Institute of Great Britain and Ireland: it has a fine special library and a large collection of photographs which have been always freely at the service of all who want information about the natives of any particular region: it has a *Journal* of long recognized repute: it has local correspondents not only in most parts of the Empire, but also of the world, whilst in it already meet the leading anthropologists of the kingdom. The Foreign, Colonial and War Offices not unfrequently send to its library copies of the papers issued by them from time to time and also hand over for publication in the *Journal* notes on native races made by officials.

"13. As the Royal Anthropological Institute is not a teaching body, and as it includes anthropologists from all universities, the development within it of an Imperial Bureau of Anthropology could be effected without rousing the jealousy of other institutions.

"14. The bureau would collect information respecting the ethnology, institutions, arts, religion and law of all races, especially of those in the British Empire, and it would publish the notes sent in by observers in all parts of the world, issuing these in the form of bulletins, when the reports were of such bulk and importance that they could not be conveniently included in the *Journal*: it would direct the preparation of monographs on all that is known up to date on certain departments of anthropology, and of bibliographies of the literature relating to various races and tribes, thus rendering all the available data ready for use at any moment by Government officials, selected candidates for the Services, manufacturers, traders, settlers, scientific travellers and missionaries: it could also render valuable service as an advisory body to the Government Offices.

"15. The bureau could undertake the very important task of co-ordinating the study of anthropometrics and of organizing an Anthropometric Survey for the United Kingdom, a subject of pressing importance in view of the alleged physical deterioration of the population.

"16. For carrying out the work of such a survey it would be desirable to establish a Central Committee which would comprise representatives of the Institute and also those of the various universities and other bodies.

"17. Finally, just as the Royal Geographical Society examines for and confers a diploma in geographical surveying on properly qualified candidates, the bureau might confer a diploma on officials, scientific travellers, and others who had submitted to a proper test of their distinction in some branch of anthropology, and it would approve for certificates, schoolmasters and others who had shown themselves competent to make anthropometrical observations in the examinations held under the direction of the bureau.

"18. It is obvious that the development within the Royal Anthropological Institute of such a bureau would entail additional expenditure for which its funds (derived solely from the subscriptions of its Fellows) are not adequate.

"In view, therefore, of the services which such a bureau would render to the nation, we respectfully petition His Majesty's Government to make an annual grant of £500 to the Royal Anthropological Institute for carrying out the scheme set forth, and also to grant a suitable set of rooms in the Imperial Institute. The Royal Geographical Society receives an annual grant from the State for placing its valuable collection of maps at the service of the public, and we venture to believe that the Royal Anthropological Institute, if similarly subsidised, can render in the way indicated still greater services to the nation."

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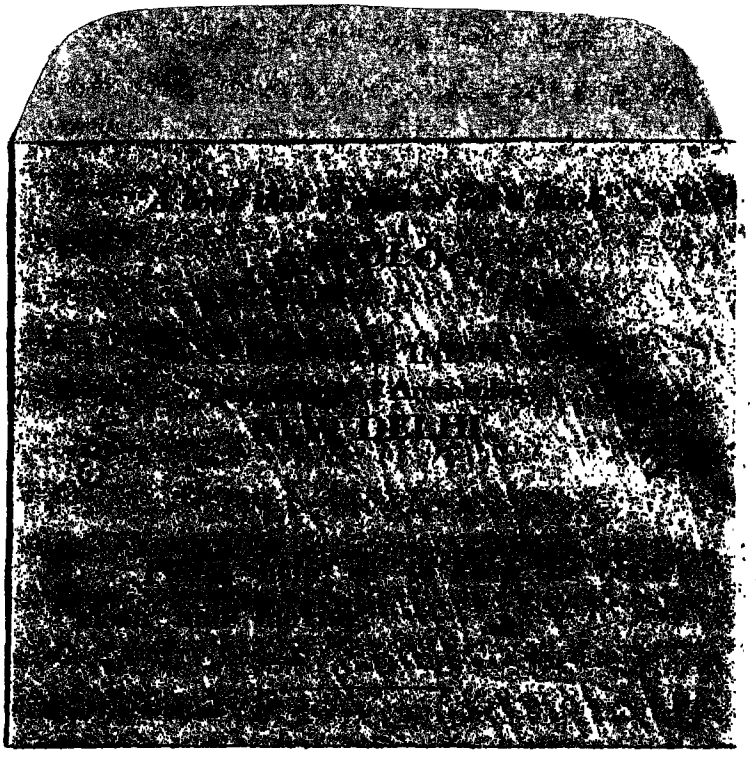
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